User Manual

IMAGEnet Lite™ Software

Version 2.09

Topcon IMAGEnet Lite™ Software User Manual
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Notations

The following notations are used in the User Manual.

MENU, COMMAND AND DIALOG BOX

Expression	Description
[File] Menu	Menu name is expressed in [ ].
[Open] of [File] menu	Command name is expressed in [ ] with menu name in which it is included.
[Open File] dialog box	Command button name is expressed in [ ].
[OK]	Command button name is expressed in [ ].
[Cancel]	Command button name is expressed in [ ].

MOUSE OPERATION

Expression	Description
Point	Move mouse and bring mouse pointer onto object of operation.
Click	Press and release mouse button.

KEY OPERATION

Expression	Description
Enter	Key name is expressed with bold type.
Ctrl + Enter	Plus symbol (+) means to press multiple keys; for example, 'Ctrl + Enter' means to press Ctrl key and Enter key.

Safety Precautions

Caution

Icons	Prevention Items
	The necessary memory capacity and hard-drive capacity may differ by the CPU and working environment of the computer.
	Use of a non-TOPCON instrument with the system may damage the personal computer and other peripheral devices.

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1. Introduction

1.1. Overview

IMAGEnet Lite™ is an advanced 32-bit image filing software that runs on Microsoft Windows XP and Windows 2000 operating systems. IMAGEnet Lite™ has a user interface similar to other applications within the IMAGEnet family, providing ease of operation for familiarized users. IMAGEnet Lite™ is considered to be a simplified version of IMAGEnet, targeting quick and simple image capturing with a non-mydriatic retinal camera or a slit lamp.

IMAGEnet Lite™ is a device independent platform. The capturing part of IMAGEnet Lite™ is controlled by a DLL (Dynamic Linking Library) module designed for the particular capture device. A capture procedure can use any of the included DLL modules. Added support for TWAIN compliant devices allows the capturing and storing of images from film scanners and digital interface cameras that support the TWAIN interface.

IMAGEnet Lite™ supports multiple database configurations over networks. It is possible to have more than one database anywhere on the network, and to easily switch to that database. This feature gives great flexibility to configuring the total network system. Images can be easily copied among all configured databases and storage drives.

IMAGEnet Lite™ also supports an image data exchange function using a regular phone line or the Internet. This adds the ability to perform so-called ‘telemedicine’ with the system. As soon as an image is taken, it may be sent anywhere around the world with a few mouse clicks, via E-mail.

1.2. IMAGEnet Lite™ Database

All IMAGEnet family databases follow a specific design. For further information on IMAGEnet Lite™ databases, please refer to section 3.

1.3. IMAGEnet Lite™ Capture DLL

IMAGEnet Lite™ uses a capture DLL (Dynamic Link Library) to capture images from a capture device. These capture DLLs are considered to be a part of IMAGEnet Lite™. It is not possible to capture images from a device without one of these DLLs. Certain DLLs may be used on the same system together, as long as the capture hardware is installed. Two or more TWAIN compliant devices can be connected to the system, though images can be captured from only one device at a time. New capture DLL files for new hardware will be added as they become available and have sufficient benefit over the currently supported devices.

2. Using IMAGEnet Lite™

2.1. Starting IMAGEnet Lite™

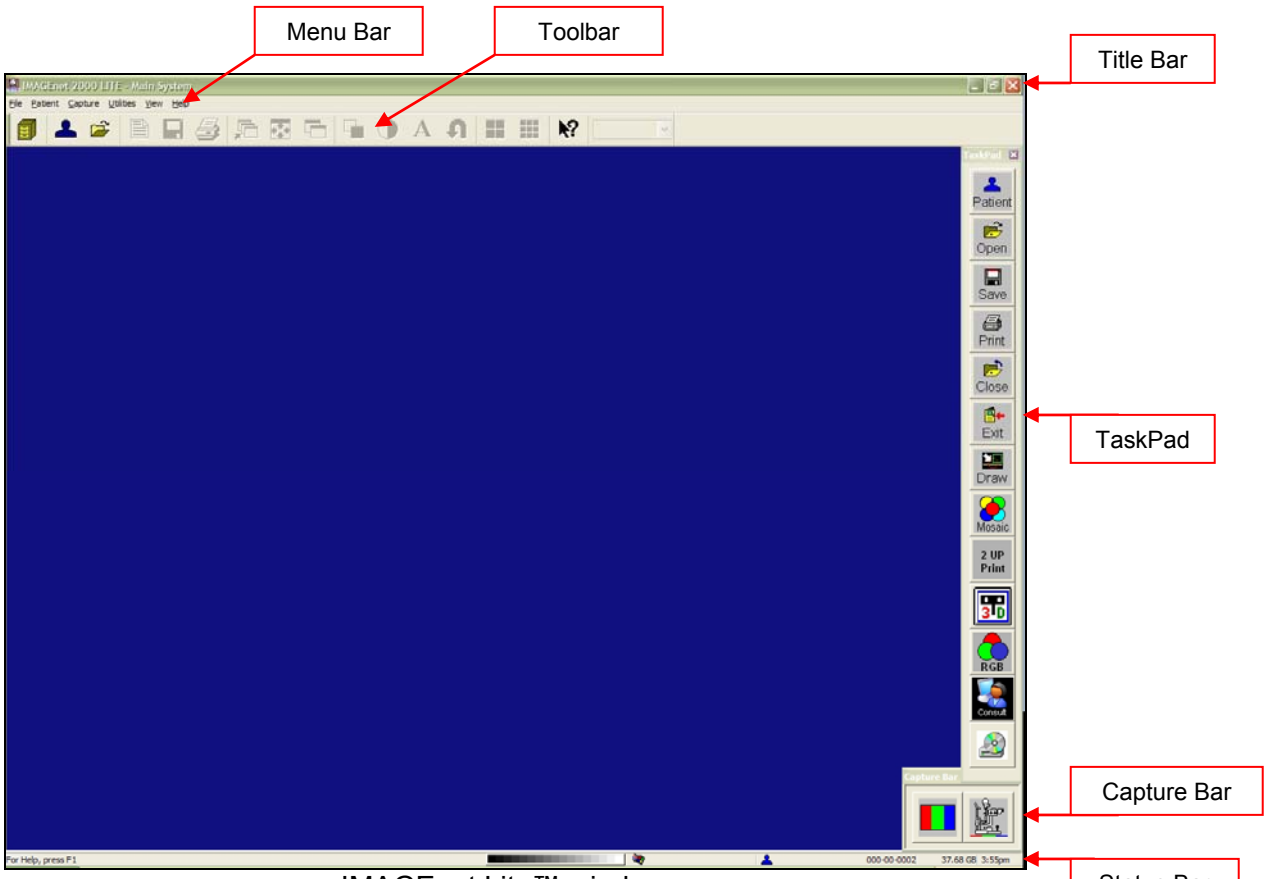
1. Click ‘Start’ on the Windows taskbar.
2. Select ‘Programs’ or ‘All Programs’ (depending on your Windows Start Menu configuration.
3. Select ‘TOPCON IMAGEnet’ → ’IMAGEnet 2000 LITE’ from the submenu.

IMAGEnet Lite™ loads the first database defined in IMAGEnet Lite™ Configuration. The database name will be shown on the title bar at the top of the IMAGEnet Lite™ window.

2.2. IMAGEnet Lite™ Components

IMAGEnet Lite™ Window

The IMAGEnet Lite™ window consists of several elements: Title Bar, Menu Bar, Toolbar, Status Bar, TaskPad, and Capture Bar.
Location of each element is indicated below:



IMAGEnet Lite™ window

In addition to the main IMAGEnet Lite™ window, images display in child windows within the IMAGEnet Lite™ window, called 'Image Windows'. An image window is created when an image is opened, and is removed when the image is closed. The IMAGEnet Lite™ window is maximized on startup to make room for image windows as large as possible. It is possible to make the window smaller; however, image windows can never be larger than the IMAGEnet Lite™ window.

In addition to a *normal* display image window, there is another type of image window for image capturing. The image window used for image capturing is called a 'Capture Window', which has a control dialog bar at the bottom of the window. This image window is quite similar to the *normal* image window, and can be treated similarly in most situations.

Title Bar

The title bar is used to show the database currently loaded. When an image window is maximized, image information displays.

Menu Bar

The menu bar consists of several items. By clicking these items, the pull-down menu related to the item will be opened. By choosing an item in a pull-down menu, you can call the function assigned to the item.

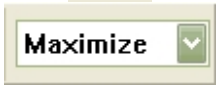
[File]	Open...
	Close*
	Save...*
	Close All*
	Print...*
	Print Preview*
	Print Setup...
	Print Template...
	Retrieve Mail…
	Send Image…*
	Note…*
	Exit IMAGEnet 2000 LITE
[Patient]	Select Patient...
	Sort by Name
	Register Patient...
	Delete Patient...
	Import Patient
	Export Patient
	Select Database / Drive...
[Capture]	Capture Procedure #1
(Only on capture stations)	Capture Procedure #2
	. . .

	Show Capture Bar
[Tools]*	Undo*
	Negative Image
	Expand Contrast (Lo, Med., Hi, Equalize)
	Adjust Contrast/Color...
	Smooth Image (Lo, Med., Hi)
	Sharpen Image (Lo, Med., Hi)
	Add to 4 Up
	Add to 9 Up
	Annotate Image
	Permanent Graphics
	Delete Graphics
[Utilities]	Copy / Delete Images...
	Check Database Files
	Archive Disk Information...
	Initialize Archive Disk...
	Options…
	Import Image...
	Export Image...*
	Transfer image to Clipboard*
	Quick Draw
	AutoMosaic
	Quick 2UP Print
	Stereo Analyzer
	RGB Channels
	Patient Consultation
	Record DVD/CD
[View]	Toolbar (Top, Bottom, Left, Right, Hide)
	Status Bar
	Display scale (50%-200%, Maximize, Resize)*
[Window]*	Adjust to Image
	Duplicate
	Cascade
	Tile
	Arrange Icons
[Help]	Help Topics
	About IMAGEnet 2000 LITE...

In the above, menu items with a '*' are not available, either hidden or grayed, when an image is not displayed.

Toolbar

The toolbar provides quick access to items in pull-down menus of the menu bar. By clicking an icon on the toolbar, the function assigned to the icon is directly called. Some of these icons are disabled if no image displays on the screen. The following is the relationship between the toolbar icons and the menu bar items.

	Database Icon	Select Database / Drive...	[Patient]
	Patient Icon	Select Patient...	[Patient]
	Open Icon	Open...	[File]
	Note Icon	Note...	[File]
	Save Icon	Save...	[File]
	Print Icon	Print...	[File]
	Load Images Icon	Open image windows for selected thumbnail images	
	Adjust Image Icon	Adjust to Image	[Window]
	Duplicate Windows Icon	Duplicate	[Window]
	Negative Image Icon	Negative Image	[Tools]
	Adjust Contrast Icon	Adjust Contrast/Color…	[Tools]
	Annotate Image Icon	Annotate Image	[Tools]
	Undo Icon	Undo	[Tools]
	4 Up Icon	Add to 4Up	[Tools]
	9 Up Icon	Add to 9Up	[Tools]
	Help Icon	Context Help	[Shift + F1]
	Image Resize List Box	Change display size of the active image	

Status Bar

There are 4 display fields on the status bar. The 1st (left-most) field displays the status of IMAGEnet Lite™. The 2nd field (towards the right side of the window) displays the patient ID code when a patient is selected. The 3rd field displays the free disk space on the Hard Disk location. The 4th (right-most) field displays the clock.

TaskPad

The taskpad consists of the following buttons:

Patient Button

Open Button

Save Button

Print Button

Close Button

Exit Button

Quick Draw Button

AutoMosaic Button

2 UP Print

Stereo Analysis Button

RGB Channels Button

Patient Consultation Button

Record DVD/CD Button

Capture Bar (Capture Stations Only)

If 'Show Capture Bar' is checked in the [Capture] menu, a capture bar displays automatically. The capture bar provides quick access to the capture procedures in the [Capture] menu. By clicking a button on the capture bar, the procedure assigned to that button is initiated.

Image Window

When an image displays on the screen, a new window for the image is created within the IMAGEnet Lite™ window. Though you can have two or more image windows on the screen, only one can be active. Most functions work on the image in the active image window. Each image window has the title on the top to show identification information of the image.

2.3. Operating IMAGEnet Lite™

Once IMAGEnet Lite™ is started; choose a command or an operation to perform from the menu bar. Use the menu icons on the toolbar as shortcuts for some menu items. A menu item or a menu icon displayed in gray means that the item functionality is not available in the current view.

To capture images (capture stations only), see section 5. To apply any tools to a displayed image or selected image(s), choose a tool from the [Tools] menu or the taskpad. The tool is then launched and applied to the selected image(s). Some tools require only selecting image thumbnails; others require opening individual image window for each image.

For any questions about the operation, press the F1 key at anytime. IMAGEnet Lite™ will display the necessary help needed at that point. It is a good idea to view the major topics in the IMAGEnet Lite™ Help before starting using IMAGEnet Lite™. To view contents of Help topics, choose 'Help Topics' from the [Help] menu.

2.4. Exiting IMAGEnet Lite™

To exit IMAGEnet Lite™, choose 'Exit IMAGEnet 2000 LITE' from the [File] menu, or press the 'Exit' button

on the taskpad. You will get prompted to confirm if you want to exit. Upon exiting, IMAGEnet Lite™ closes all image windows and releases resources. Before exiting IMAGEnet Lite™, save all images modified during the session, or they will be lost. IMAGEnet Lite™ does not prompt to save modified images on application exit.

After copying an image to Clipboard, be aware that the image data remains in the Clipboard. IMAGEnet Lite™ does not prompt to discard image data from Clipboard upon exit. If no longer needed, remove all data from Clipboard using Windows Clipboard Viewer.

3. IMAGEnet Lite™ Databases

An image captured by IMAGEnet Lite™ contains information of many kinds. It includes patient information (such as patient ID code and patient name), image information (such as captured date and procedure name), and specific image data. IMAGEnet Lite™ maintains this information using the most efficient way.

Since, in most cases, each patient has two or more images, the patient information and the image information are stored and maintained separately. The actual image data is stored in a separate file, called the image file, because the image data is never accessed until the image displays.

A group of data files that contain patient information and image information is called the database. It is a group of structured data files that allows users to retrieve a particular data - an image - in the data files quickly. IMAGEnet Lite™ uses 2 types of databases. One is called a system database, and the other is called a storage drive. It is easy to obtain access and switch between databases in IMAGEnet Lite™ without exiting the program.

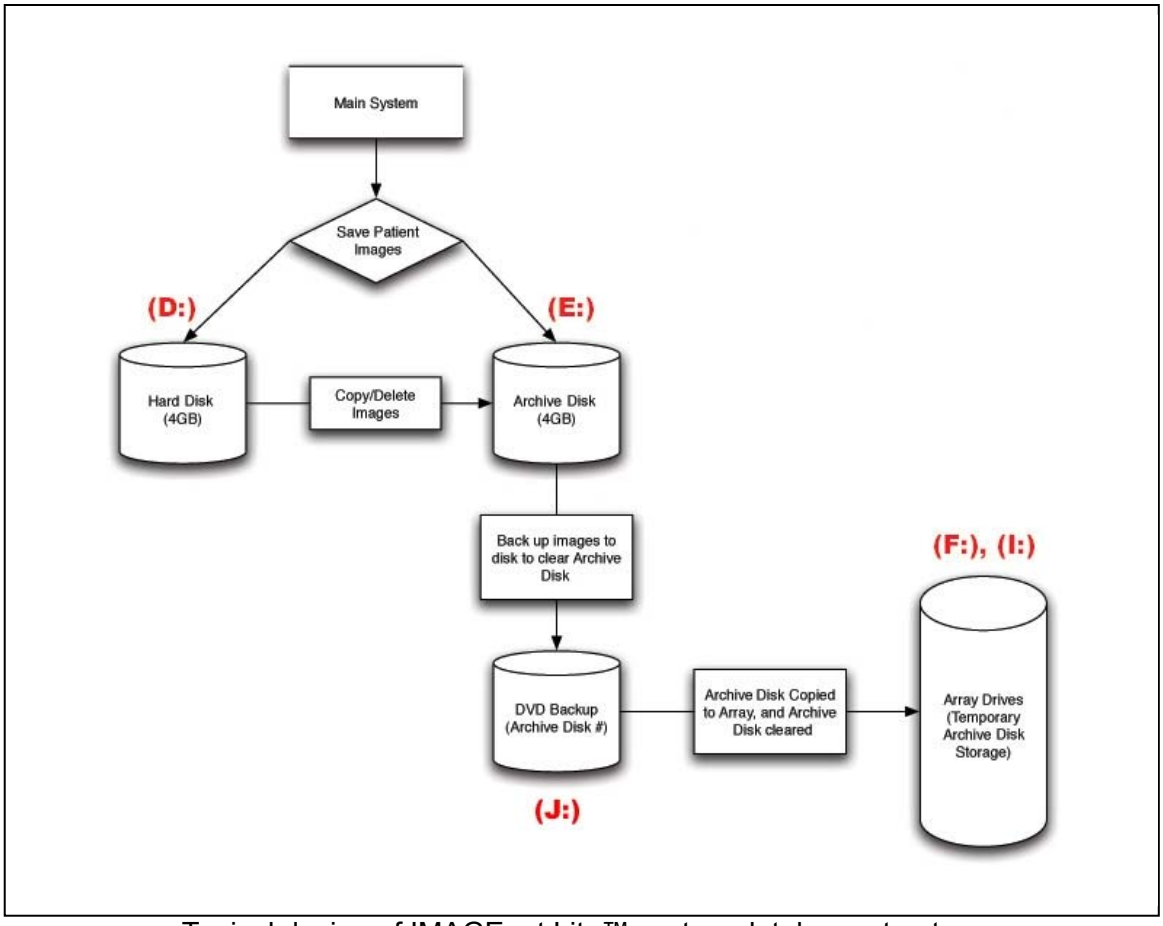
3.1. System Database

The system database is a structured database which consists of several data files. The data files are kept and maintained in the database directory, and image files are stored in the image files directories. These directories are located on various partitions of the computer's hard-drives.

In most cases, the main location for saving image files is the Archive Disk. Once the Archive Disk location is filled, the user has to perform the Archiving Process (see section 14) during which a copy of the Archive Disk is recorded to a DVD (as the ultimate backup), and contents of the Archive Disk are moved to a temporary location called the Array Drive. The Archive Disk contents are stored as an Array Disk (see section 3.3).

Another location of the system database is the Hard Disk (also referred to as the Image File Drive). In most cases, the Hard Disk should be treated as an overflow location. In the event the Archive Disk fills up and the user has no time to perform the Archiving Process, captured images may be saved to the Hard Disk. After the Archiving Process is performed, the image files should then be moved from the Hard Disk to the Archive Disk using the Copy/Delete utility (see section 13.1).

IMAGEnet Lite™ can also access system databases located on remote computers. However, this must be prepared and defined using IMAGEnet Lite™ Configuration. Multiple system databases must use unique IDs.



Typical design of IMAGEnet Lite™ system database structure

Note: System database design may differ depending on system type.

IMAGEnet Lite™ cannot display proofsheets in system databases, stored there by other systems using IMAGEnet™. IMAGEnet Lite™ is not able to access some data without conversion. In order to view in IMAGEnet Lite™ images which were stored in IMAGEnet™ in form of proofsheets, system database must first be converted.

⚠ CAUTION	A properly structured IMAGEnet Lite™ system database is vital for correct data manageability. Improper reconfigurations of that structure may result in unrecoverable data loss.

3.2. Storage Drives

IMAGEnet Lite™ is also able to store images to any disk drive including remote drives on remote computers. A storage drive is very convenient for storing images temporarily. Any removable media (flash drive, CD, etc.) can also be used as a storage drive to transfer images from one computer with IMAGEnet Lite™ to another.

Image files are stored in the root directory of a storage drive. Patient and image information are also stored in the same directory, in the form of a file called a DATAFILE. DATAFILE is not a structured database file, but contains complete information about pertaining images. IMAGEnet Lite™ still supports INFOFILE and ARCHIVE for exchanging image data with legacy IMAGEnet systems.

Unlike a system database, a storage drive does not require any preparation for use. IMAGEnet Lite™ automatically creates DATAFILE on the storage drive if it does not exist, and automatically removes it if all images on the storage drive have been erased. By default, each capture station is configured with 2 storage drives:

- Study Drive
- Emergency Save Location

Availability of these drives is important for various functions, especially in case of an emergency, such as having too many captured images to be saved to the system database, or if the system database is on a busy network, or otherwise inaccessible. Even in such cases, it is possible to safely save captured images to the storage drive.

IMAGEnet Lite™ cannot display proofsheets in storage drives, stored there by other systems using IMAGEnet™.

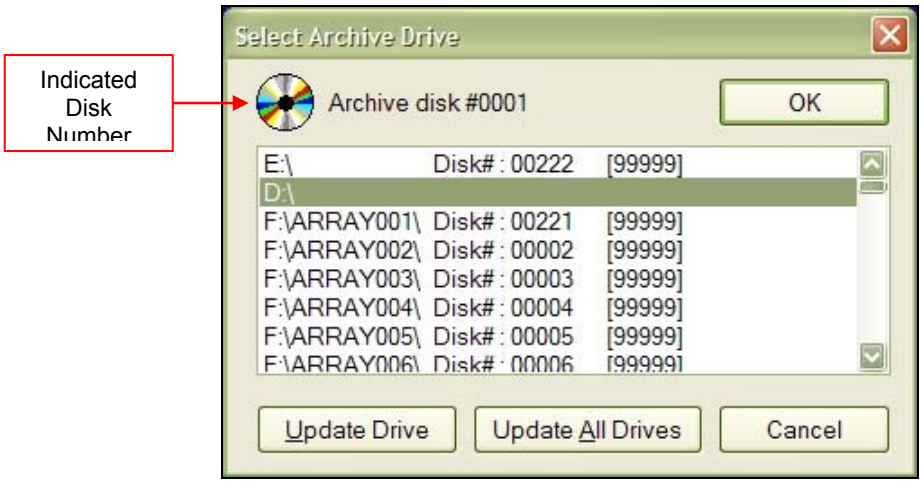
3.3. Array Disks

Array Disks are part of a system database. Array Disks are Archive Disks created during the Archive-to-Array transfer of the Archiving Process (see section 14.3). Because of this, the names Archive Disk and Array Disk are interchangeably used to refer to these volumes. Each disk is referenced by a unique sequential number. Every time the Archiving Process is performed, the Archive Disk number increments. The 2 stages of the process ensure that the Archive Disk contents are copied onto a physical media disc (DVD/CD), as well as transferred to a temporary Array Drive storage. A typical capture station contains 2 Array Drives, which are separate partitions on system hard-drives. However, there is no restriction on the amount of these drives. The more drive space dedicated to those drives, the bigger the temporary storage is, the more Array Disks can fit in.

Once the temporary Array Drive(s) storage is filled with the maximum number of Array Disks (as set in the IMAGEnet Lite™ Configuration), the next Archiving Process will overwrite the oldest Array Disk in order to fit the new Array Disk into the Array Drive. At that point, the data from the overwritten Array Disk can only be found on the DVD/CD recorded during the Archiving Process for that disk. For that reason, it is crucial to retain the recorded DVD/CDs in a safe location, each one labeled individually with the corresponding Archive Disk number.

While all data exists within system database, either in the Hard Disk, Archive Disk, or any of the Array Disks, IMAGEnet Lite™ automatically keeps track of all image files. There is no need to search for images stored in different locations. Selecting the patient will automatically open all images for that patient from all locations they are saved in. A yellow number in the upper left corner of each thumbnail image references the actual location of each image (if a thumbnail is displayed without the yellow reference number, it means the image is located on the Hard Disk).

If any of the Array Disks have been overwritten by the system (to fit new disks into Array Drive(s)), selecting a patient whose images are located on that disk will cause IMAGEnet Lite™ to display a dialog box as shown below, indicating at the top of the box which disk number these images are located on:



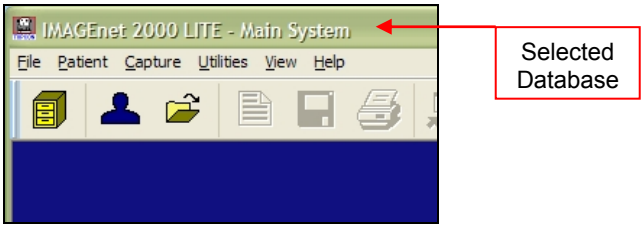
The user should insert the indicated DVD/CD into the DVD/CD-ROM drive and select it from the list.

To view the current Archive and Array Disk status in your system, see section 13.3.

Array Drives are supported as Read-Only. These storage locations cannot be selected as a destination for saving images during image capture or from the ‘Copy/Delete Images…’ utility.

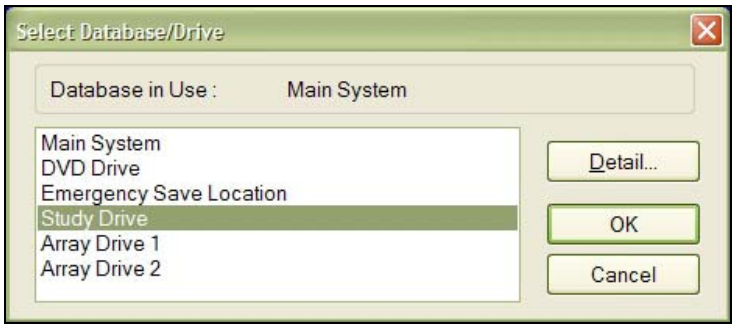
3.4. Selecting a Database

When IMAGEnet Lite™ launches, the first database defined in IMAGEnet Lite™ Configuration is automatically selected. Usually, it is a system database named Main System (unless otherwise configured). This can be verified by checking the title bar of IMAGEnet Lite™, as shown below:



The selected database allows user to view only patients saved to that database. To view patients saved in another database, the user has to first switch to the other database.

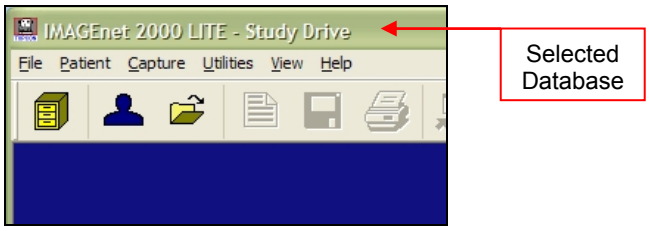
To select a database or a drive to access, choose 'Select Database/Drive...' from the [Patient] menu, or click the 'Database' icon on the toolbar. The following dialog box displays to select a database or a drive:



Select Database/Drive dialog box

Click a database or a drive to access from the database/drive list, then click 'OK'. To stay in the database or the drive currently used, click 'Cancel'.

Once a location has been selected, IMAGEnet Lite™ automatically loads the data and displays the list of patients (see section 4.2). For example, if the Study Drive is selected, the title bar of IMAGEnet Lite™ reflects the change by showing the loaded database:



If the chosen location is empty, the following prompt displays: “No Valid Patient Record in Database”.

3.5. Compatibility

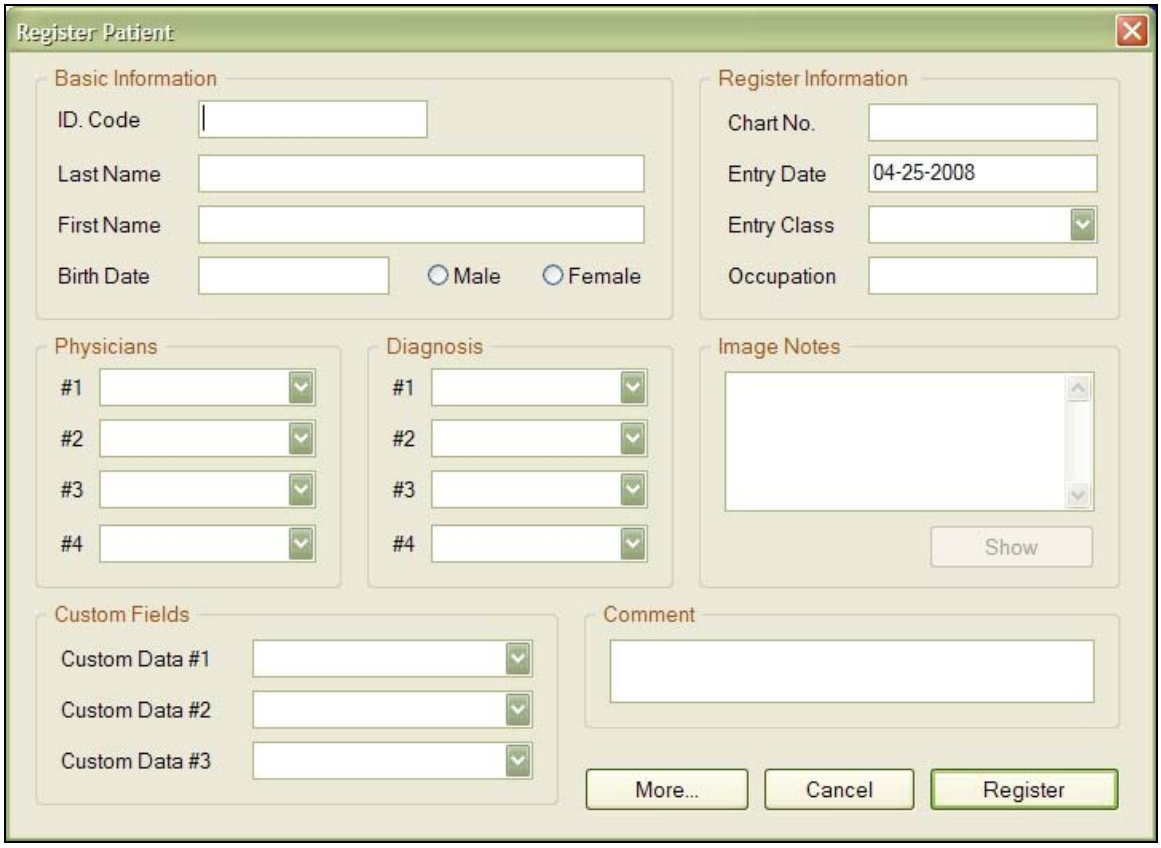
IMAGEnet Lite™ uses a database structure compatible with IMAGEnet™. However, IMAGEnet™ database is not 100% compatible with IMAGEnet Lite™, because IMAGEnet Lite™ does not support ‘proofsheet’ functionality. IMAGEnet™ is able to access any IMAGEnet Lite™ database without any restrictions, but IMAGEnet Lite™ does not allow users to view proofsheets from IMAGEnet™ databases.

IMAGEnet Lite™ will not directly access all data from an existing IMAGEnet™ database. However, a conversion program is available for IMAGEnet™ databases, and IMAGEnet Lite™ even provides a way to exchange image data with legacy IMAGEnet™ systems using a compatible image information file.

4. Patient Management

4.1. Registering New Patients

Before any images can be captured or saved into IMAGEnet Lite™, patient information has to be registered into the selected database. The registration can be performed during the capture process (see section 5.2); or it can also be done at any time by choosing 'Register Patient…' from the [Patient] menu. The following dialog box displays to register a new patient:



Register Patient dialog box

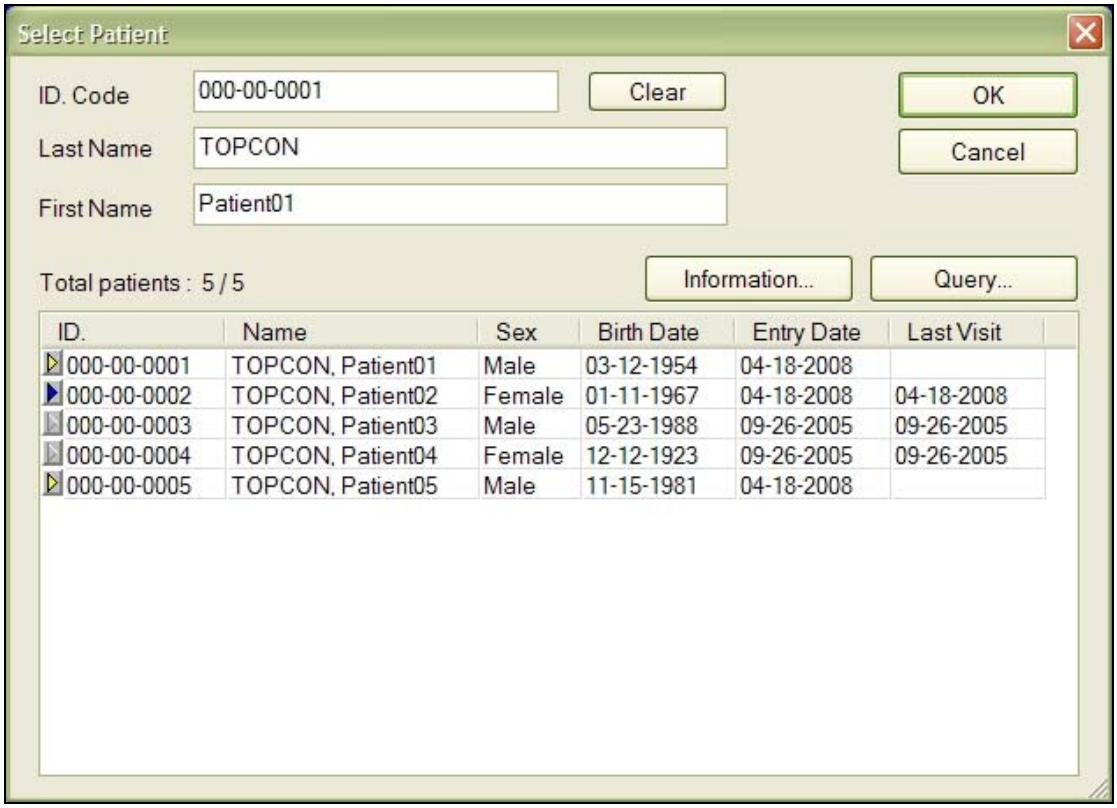
The Register Patient dialog box allows the user to fill out desired fields to register a patient. At least the patient ID Code and Last Name must be entered. Other information fields may be left blank. They can be entered or changed later.

Note: The ID code must be unique. None of the filled out fields should contain any special characters except for hyphens and/or slashes (Use of commas and/or quotation marks may be especially harmful to integrity of database files).

After the desired fields are filled out, click 'Register' to save the information into the selected database. The Register Patient dialog box remains open and all fields are cleared to allow registering another patient. To exit the dialog box, click 'Cancel'.

4.2. Patient Search and Selection

To find a patient or patients, choose 'Select Patient...' from the [Patient] menu, or click the 'Patient' icon on the toolbar. The following dialog box displays:



Select Patient dialog box

To select a patient, you can scroll through the list to find the desired entry, using the scroll bar or the up and down arrow keys on the keyboard (click anywhere on the list before using the arrow keys). If the patient is in the list, just click that entry to highlight it. Clicking the 'Information…' button allows user to add or edit information for that patient (see section 4.3). Clicking the 'OK' button (or double clicking the entry) allows user to view images for that patient (see section 6.2).

If the patient list is very long, scrolling may be time consuming. IMAGEnet Lite™ also has an automated scroll-to function. By entering patient information in the appropriate fields, the list automatically scrolls to the first entry that matches the entered information.

Auto Scroll-To

The patient list is usually sorted by the patient ID code, unless 'Sort by Name' in the [Patient] menu has been checked. If the list is sorted by ID code, start typing the ID code of the patient in the corresponding field on top of the Select Patient dialog box, and the list will automatically scroll to the first entry that matches the

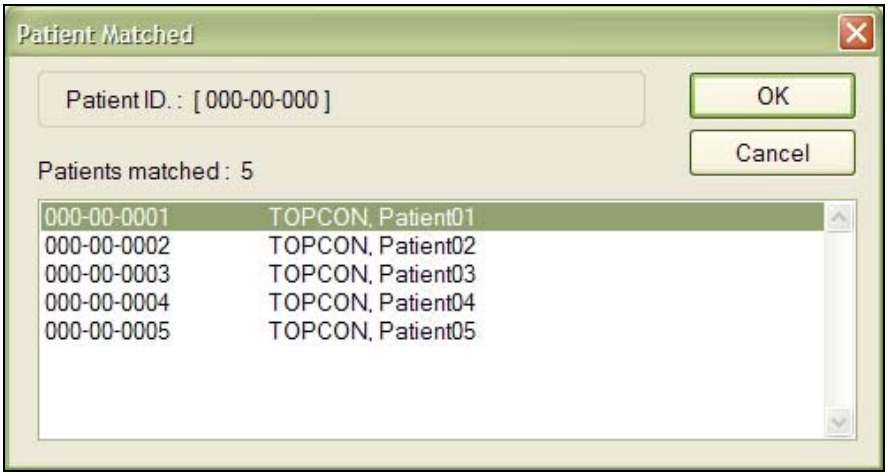
entered ID code. If the list is sorted by name, begin typing the last name of the patient to use the auto scroll-to function. The auto scroll-to is not case sensitive; therefore you can use lower or upper case letters in those fields.

However, please note that patient list sort is case sensitive. If some patients are registered in capital letters and others in lower case, the list will be sorted first by upper case alphabetical and then by lower case alphabetical letters. The differences in letter case may result in 2 sub-lists within the patient list area, first one sorted by capital letters, and the second by lower case. In that event, the auto scroll-to function only works on the first sub-list.

Partial Matches

After entering patient ID code or last or first name, and clicking 'OK' in the Select Patient dialog box (if the entered information only partially matches some entries in the patient list), IMAGEnet Lite™ displays a list of patients that matches those criteria. If only a patient's last or first name is entered, the Patient Matched list always displays, even when the name specified is matched exactly to the name of an existing patient.

Using the example patient list in the Select Patient dialog box above, typing '000-00-000' as the patient ID code, or 'TOPC' as the last name, or 'Pat' as the first name, displays:

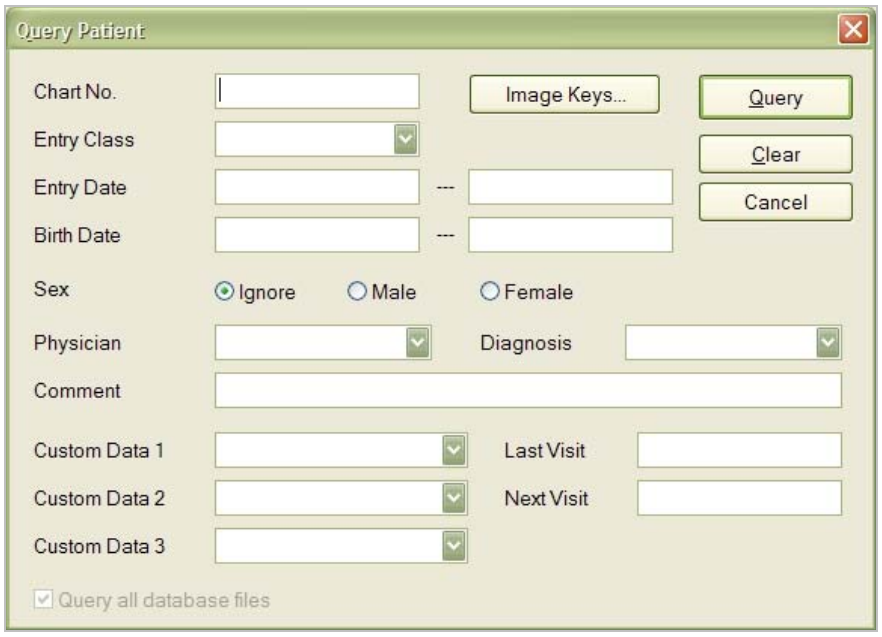


Patient Matched dialog box

Please note that for the partial match functionality, the entered text in the Select Patient dialog box fields is case-sensitive. Thus, typing 'topc' as the last name, or 'pat' as the first name will not show any results.

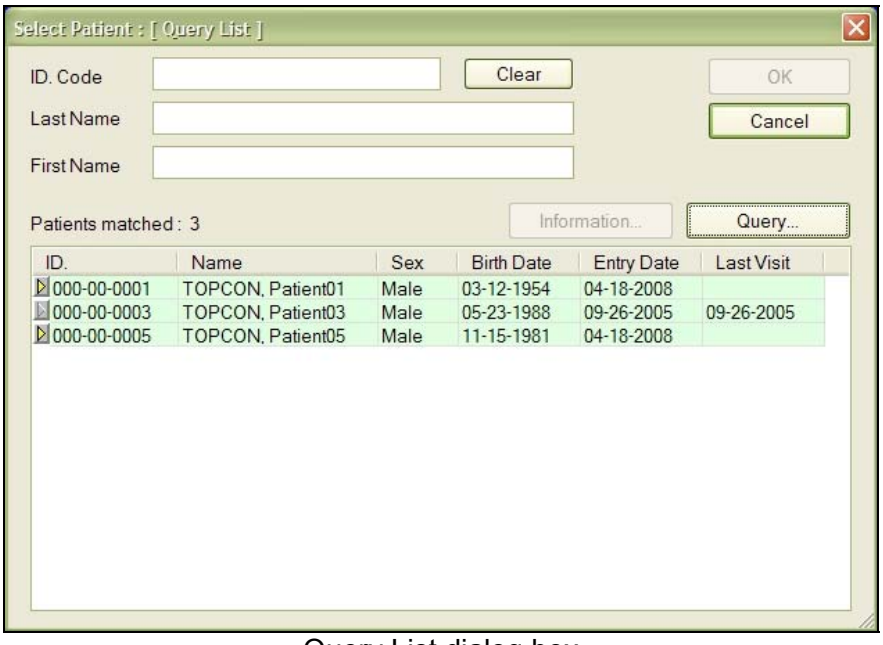
Searching for Patients with Specific Conditions

To search for patients with specific conditions such as the registration date and/or birth date, click the 'Query…' button in the Select Patient dialog box. The following 'Query Patient' dialog box displays:



Query Patient dialog box

Fill in the condition(s) under which to search for patient(s), and then click the 'Query' button. To not use some conditions in the query, leave the corresponding fields blank. All patients who satisfy entered condition(s) are found and displayed in a query list. The below example Query List displays all patients who are male:

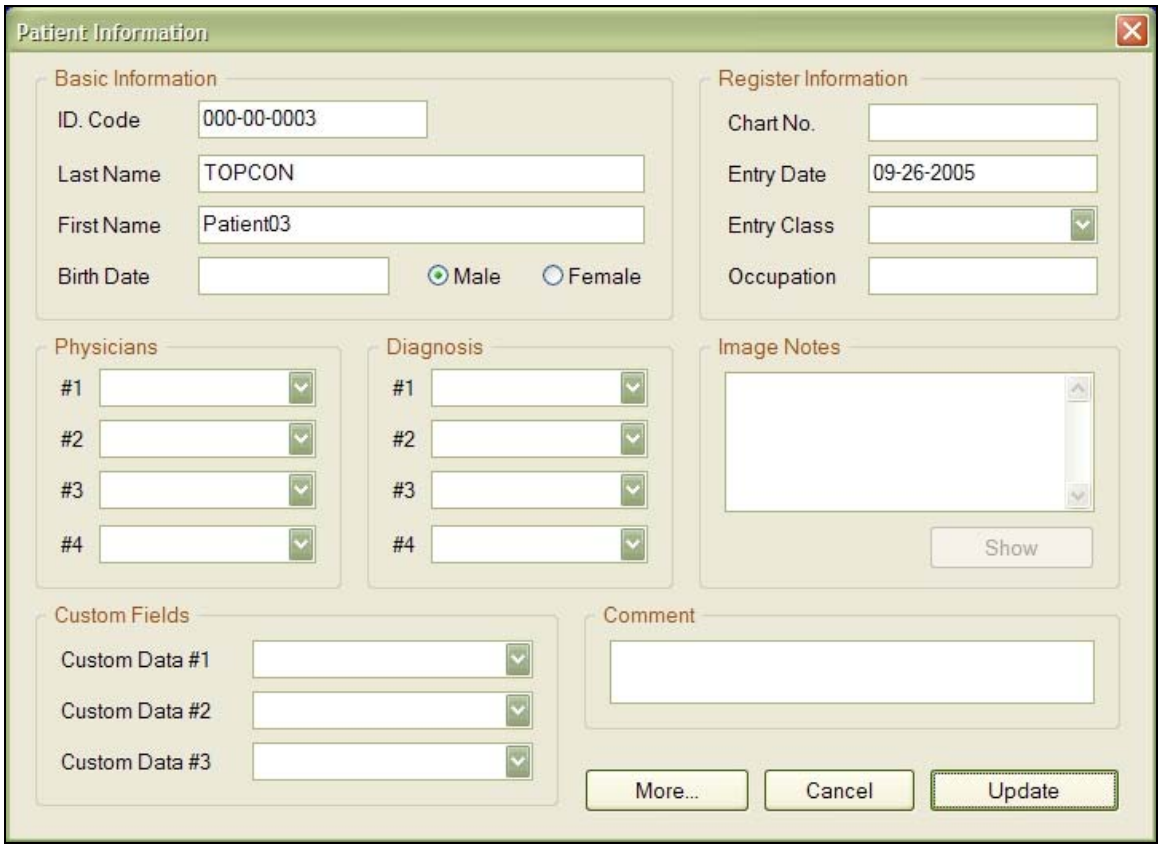


Query List dialog box

Unlike the patient list in the Select Patient dialog box (white background), the query list (light green background) is kept as the alternate patient list until another database is selected, or until all the conditions specified in the Query Patient dialog box are cleared.

4.3. Accessing and Updating Patient Information

To view, modify and/or add information about a patient already registered, highlight that patient and then click the 'Information…' button in the Select Patient dialog box. The following dialog box displays:



Patient Information dialog box

Please note that ID. Code and Last Name fields are mandatory and must be filled out before proceeding. Other information fields may be left blank.

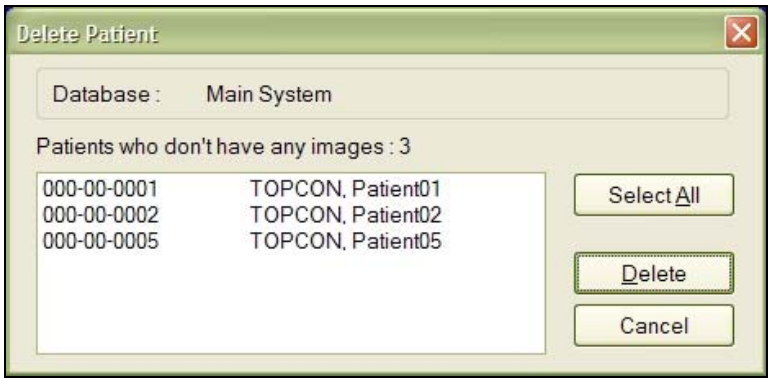
Note: The ID code must be unique. None of the filled out fields should contain any special characters except for hyphens and/or slashes (Use of commas and/or quotation marks may be especially harmful to integrity of database files).

Click 'Close' to skip updating any patient information; or type new data to any data field to update, then click 'Update' to save the information into the selected database. If the patient ID code is modified to one which already exists in the database, IMAGEnet Lite™ updates the information for the chosen ID with the contents of the above dialog box. This results in merging patients, including all images for those patients, under the new ID code. If the ID code is modified to one which does not exist in the database, IMAGEnet Lite™ overwrites existing patient information with the contents of the above dialog box.

Please note that the above process only updates the patient file. Image files generated during capture also contain certain data about the patient. The above process ensures that all those images are properly linked to the patient whose information is updated, but the image files retain the original patient data.

4.4. Removing Patients

Once a patient entry is registered, it resides in the patient list, regardless if any images are saved for that patient. If all images for a particular patient are removed from the selected database, or no images were ever saved for that patient, the patient entry can be removed from IMAGEnet Lite™. To delete patient(s) who do not have any images, choose 'Delete Patient…' from the [Patient] menu. IMAGEnet Lite™ checks the database, and then the following dialog box displays:



Delete Patient dialog box

Select patients to delete from the patient list in the dialog box. To select all of them, click 'Select All'. Then click 'Delete' to start deleting the selected patients. IMAGEnet Lite™ asks for confirmation before deleting the patients from the database permanently. Cancel the operation by clicking 'Cancel' in any step.

Note: Patients with images in the database cannot be deleted.

5. Capturing Images

This section applies to capture stations only.

CAUTION	Use of non-TOPCON instruments with the system may damage the personal computer and other peripheral devices.

Capturing images in IMAGEnet Lite™ usually requires the following steps:

- Select a capture procedure
- Register or select a patient
- Capture images using a capture device for the procedure
- Save captured images to a system database or a storage drive

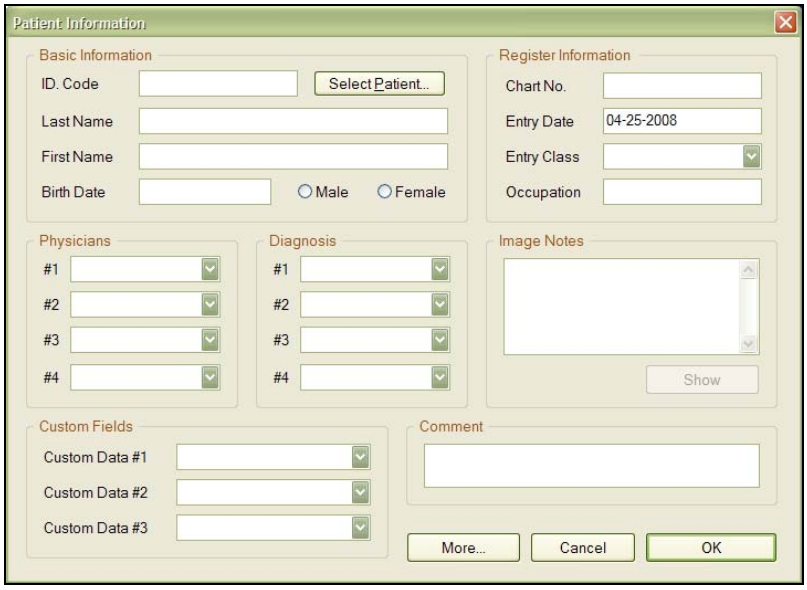
The above operations can be started through the menu bar or capture bar of the IMAGEnet Lite™ window.

5.1. Selecting a Capture Procedure

To select a capture procedure, choose the desired capture procedure from the [Capture] menu. The capture procedures are defined using the IMAGEnet Configuration program, and the definition contains all necessary settings for the capture device and the capture DLL.

5.2. Selecting a Patient

Once a capture procedure has been selected, the Patient Information dialog box automatically displays:



Patient Information dialog box

To capture images for a new patient whose information is not yet registered, fill the patient information fields in the dialog box. At least the patient ID. Code and Last Name must be entered. Other information fields may be left blank. They can be entered or changed later.

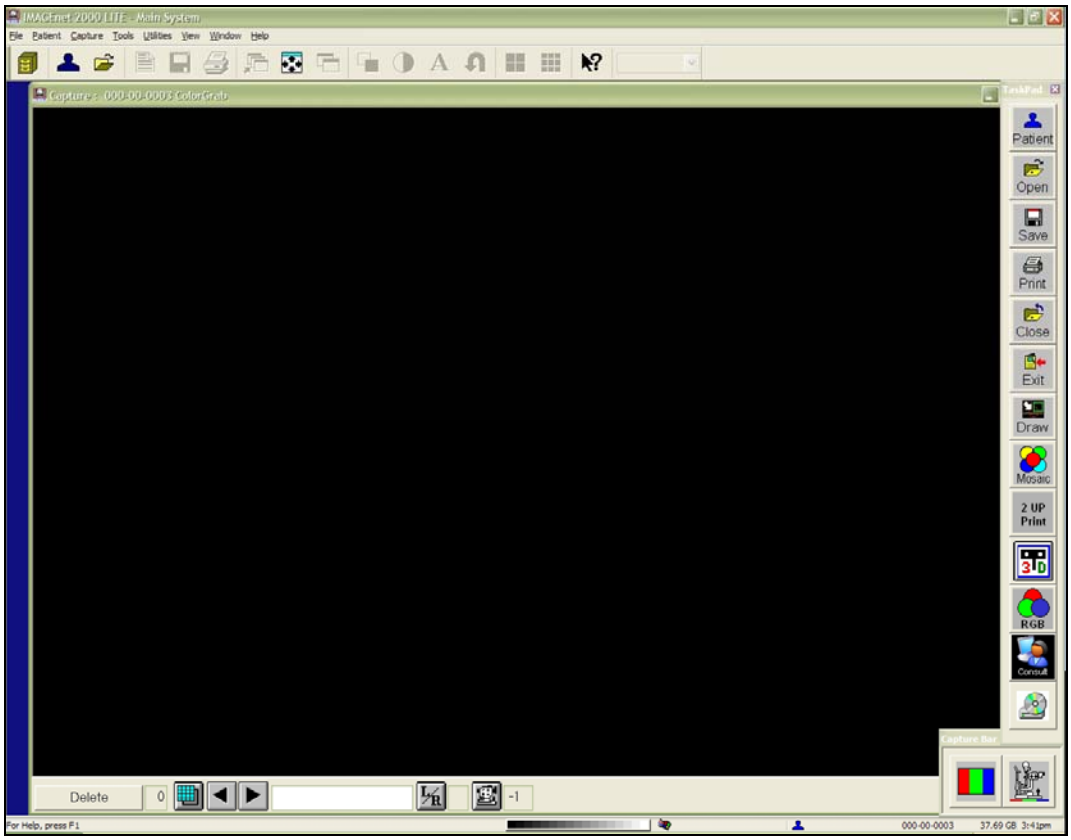
Note: The ID code must be unique. None of the filled out fields should contain any special characters except for hyphens and/or slashes (Use of commas and/or quotation marks may be especially harmful to integrity of database files).

To capture images for a patient whose information is already registered in the database, click 'Select Patient...'. The Select Patient dialog box displays to select a patient from the patient list (see section 4.2).

After selecting a patient, or after filling out fields for a new patient, click 'OK' to start capturing. If this is a new patient, all entered information for that patient will be registered into the database selected in IMAGEnet Lite™.

5.3. Start Capturing

The capture window looks like any another image window, with the addition of a control dialog bar at the bottom:



Capture window

The control dialog bar allows changing of device parameters such as the viewing angle and the left or right eye.

To capture an image, use the trigger button of the capturing device (a retinal camera or a slit lamp). To capture images using a non-flash device, use the space bar as the trigger button.

When the trigger button is pressed, an image is captured and displays in the capture window. IMAGEnet Lite™ beeps when it is ready for the next capture. It is important to wait for the beep before pressing the trigger button again, or even moving the instrument to another position (such as switching between left and right eyes). All the images captured are stored in the image buffer. The number of images that can be captured at a time depends on the system's resources.

5.4. Viewing Captured Images

In the capture window, any captured image can be displayed using the left and right arrow buttons on the control dialog bar. These buttons change the displayed image to the one before (previous) and the one after (next).

To view captured images as a proofsheet, click the 'Proofsheet' button on the control dialog bar. This will change the display mode of the capture window to the proofsheet display mode. Since each proofsheet holds up to 16 images, if there are more than 16 images captured during the capture session, there will be multiple proofsheets generated in the capture window. If there are 2 or more proofsheets, the left and right arrow buttons allow switching the display between multiple proofsheets while in the proofsheet display mode. To go back to the normal display mode, just click 'Proofsheet' again. Double click the image on the proofsheet to display it.

IMAGEnet Lite™ does not support saving proofsheets. The capture window allows for viewing images as a proofsheet while in that window only. Saved images are saved individually.

5.5. Deleting Captured Images

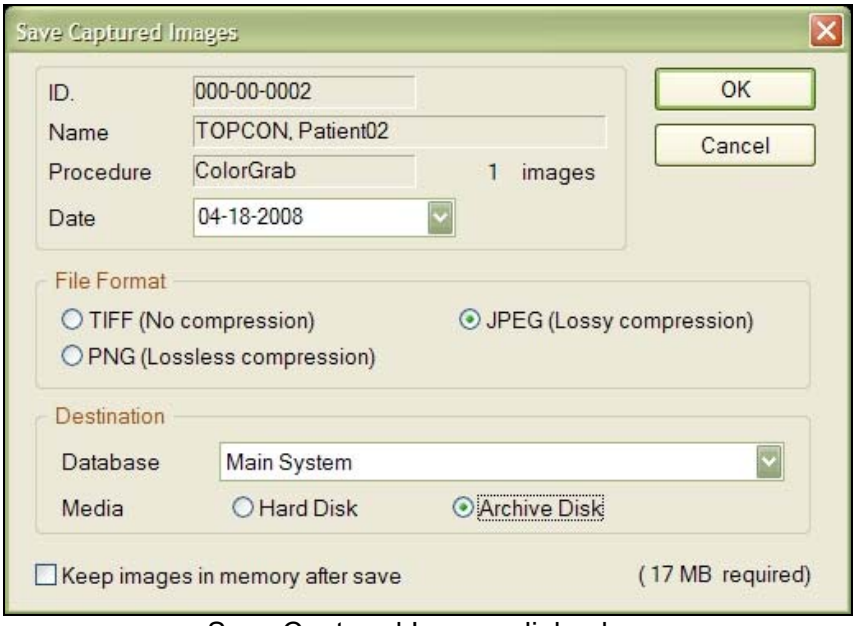
Delete a captured image that is being displayed in the capture window anytime by clicking the 'Delete' button

on the control dialog bar.

If in the proofsheet display mode, first, mark the images to delete by clicking on them using the mouse. The marked images are framed by a yellow line. You can switch between proofsheets while marking images to be deleted and then click 'Delete' on the control dialog bar. All the images marked will be deleted.

5.6. Saving Captured Images

To save captured images, choose 'Save...' from the [File] menu, or click the 'Save' icon on the toolbar or taskpad. The following dialog box displays to select destination and format:



Save Captured Images dialog box

Comparison of File Format Types Available

- TIFF – uncompressed data - best quality, but largest file size.
- PNG – smaller file size than TIFF, no loss in quality, but not a widely accepted image format.
- JPEG – compressed files; smallest file size, still excellent quality, but not as good as PNG or TIFF. Commonly accepted image format. (recommended as default).

Select the destination database and file format. In most cases, it is recommended to save as a JPEG to the Archive Disk. Click 'OK' to save the captured images. If a message displays that the Archive Disk is full, save images to the Hard Disk until you complete the Archiving Process (see section 14). Captured images are saved as single images.

After all the images are saved, the capture window will close and the capture procedure will conclude.

CAUTION	Note that the necessary memory capacity and hard-drive capacity may differ by the CPU and working environment of the computer.

5.7. Working with the Capture Window

It is possible to open a new capture window even while capturing images. Just start another capture procedure by choosing a capture procedure from the [Capture] menu. No restriction is applied to the second capture procedure. The same capture procedure may be started for the same patient.

To select a capture procedure opened among multiple other capture windows, click the desired capture window to capture images. That capture window becomes active, and the image captured next will be sent to that capture window.

To quit a capture procedure, choose ‘Close’ from the [File] menu, click ‘Close’

on taskpad, or use the system menu of the capture window. You can access system menu of that window by clicking the IMAGEnet icon at the upper left corner of the window - the left end of the capture window title bar. Quitting a capture procedure, will empty out all captured images, including images flushed to the hard-drive.

Since the capture window is quite similar to the *normal* image window, in most cases, it may be treated as a normal image window.

6. Displaying Images

Displaying images in IMAGEnet Lite™ usually requires the following steps:

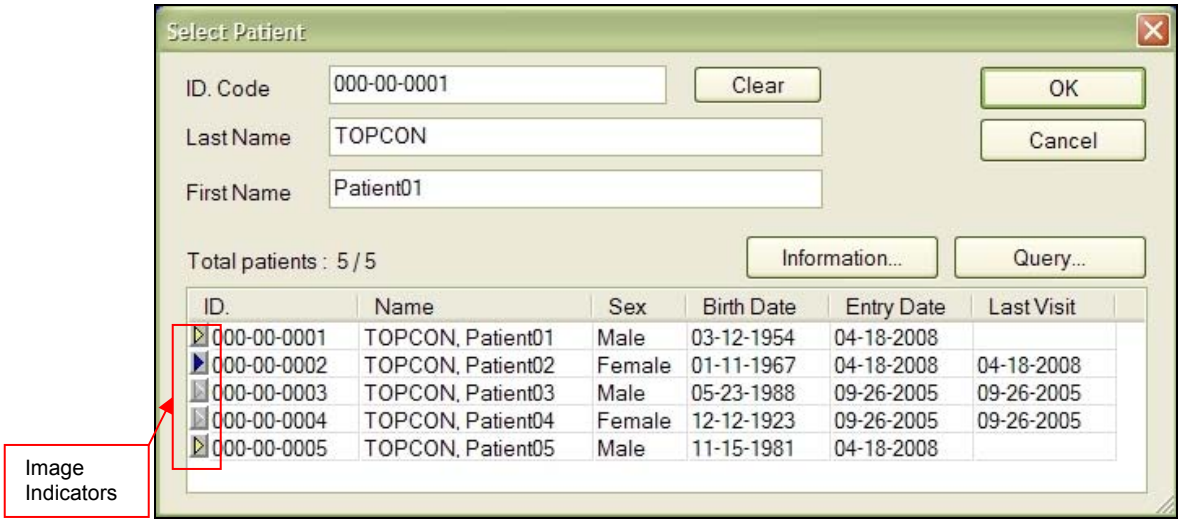
- Select a database
- Select a patient
- Select images

6.1. Selecting a Database

When opened, IMAGEnet Lite™ loads the first database (by default) defined in its configuration. The selected database name displays on the title bar at the top of the IMAGEnet Lite™ window. The list of patients described in the next step displays only patients saved to the selected database. If images are saved under a patient registered in another database, please follow section 3.4 to select another database.

6.2. Selecting a Patient

To select a patient, choose 'Select Patient...' from the [Patient] menu, or click the 'Patient' icon on the toolbar. The following dialog box displays to select a patient:



Select Patient dialog box

Image Indicators

No images exist for the patient

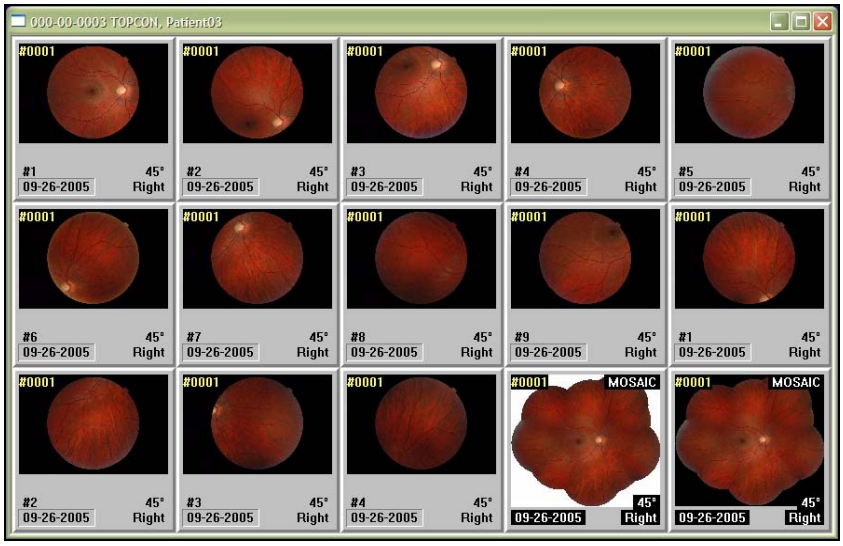
New images added for the patient

Images exist for the patient

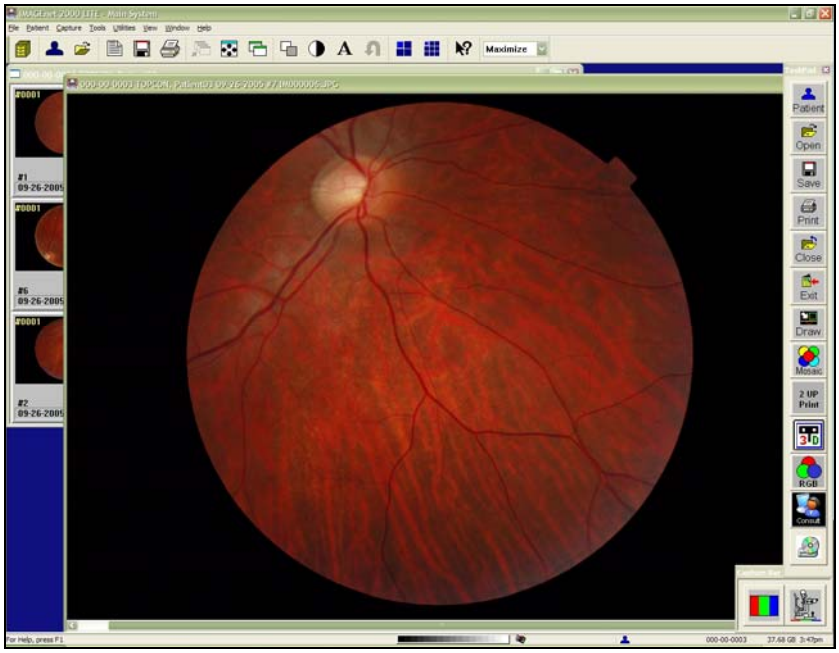
To search for and select a patient, please refer to section 4.2. Once a patient has been selected, IMAGEnet Lite™ automatically searches the database and displays thumbnails of all images for that patient.

6.3. Selecting an Image

To open all images for an earlier selected patient, choose 'Open...' from the [File] menu, or click the 'Open' icon on the toolbar. Thumbnails of all images for that patient display in a thumbnail window:

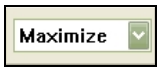


Double-click the thumbnail image you wish to view. The selected image displays in a separate image window:



6.4. Working in an Image Window

Resizing an Image on the Screen

To resize an image displayed on the screen, activate the image window (click anywhere on the window), and then select the desired display size from the drop-down 'Image Resize' list box 

on the toolbar. By default, the display size is set to 'Maximize', to enable viewing of the entire image. Changing the size to any % will reduce or enlarge the image display, depending on actual image size and screen resolution. The original image data will not be changed. To resize the original image permanently, select 'Resize' from the drop-down list. This changes the original image data to the display size currently set, and the display ratio is reset to 100%.

Note: An image with display ratio not equal to 100% cannot be measured or compared using the Measure function or the Compare function. In such a case, change the display ratio of the image to 100% or 'Resize' the image permanently.

Closing an Image Window

To close an image window, make the window active, and then choose 'Close' from the [File] menu, click 'Close'

on taskpad, or use the system menu of the image window. You can access system menu of that window by clicking the IMAGEnet icon at the upper left corner of the window - the left end of the image window title bar.

Rotating View of Multiple Image Windows

Multiple image windows can be opened simultaneously, limited only by the amount of system memory. The image window opened last displays on top. To switch to another image window beneath, right click the top image window. The next image window displays in the forefront. This action rotates all the image windows opened, including the capture windows and the edit windows, sending the top image window to the bottom.

Displaying Additional Image(s) from a Thumbnail Window

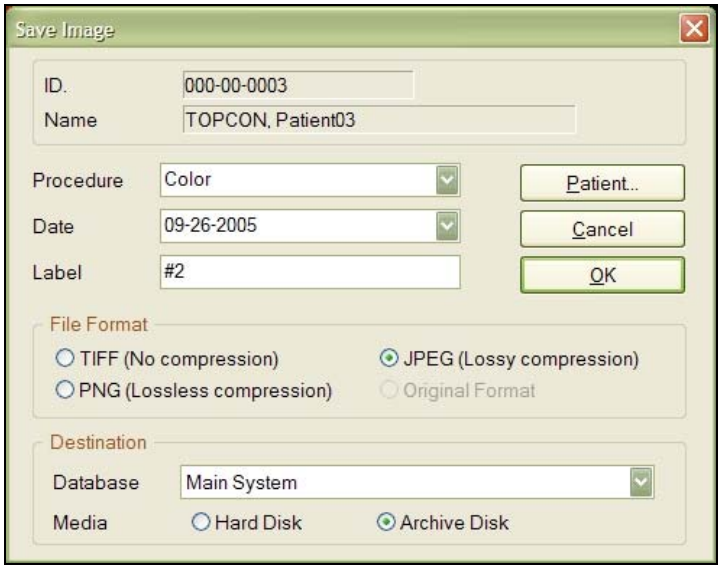
To display additional image(s) from a thumbnail window, first, activate the thumbnail window (click anywhere on the thumbnail window). If the thumbnail window is not easy to view, rotate view of the windows by clicking the right mouse button anywhere on an image window until the thumbnail window comes to the forefront view. After activating the thumbnail window, double-click any thumbnail image in the window to display the image, or select multiple thumbnails and click the 'Load Images' icon on the toolbar. To select/unselect all thumbnail images in the thumbnail window, hold down the CTRL key on the keyboard and click on any of the thumbnail images.

7. Saving Images

Saving copies of existing original or edited images is very similar to saving captured images (see section 5.6), even though some options are different. IMAGEnet Lite™ allows the user to save images displayed on the screen to any database defined in IMAGEnet Lite™ configuration.

To save an image, first, activate the image window you want saved. You can do this by clicking anywhere on the window, or using several click actions of the right mouse button to rotate windows until the desired window becomes active.

Choose 'Save...' from the [File] menu, or click the 'Save' icon on the toolbar or taskpad. The following dialog box displays to select destination and other parameters.



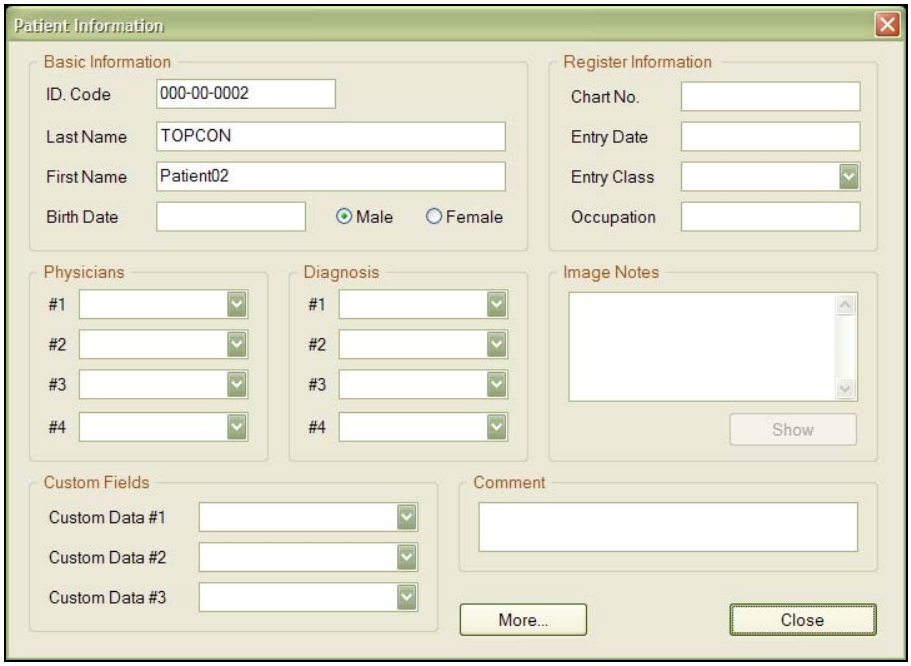
Save Image dialog box

Comparison of File Format Types Available

- TIFF – uncompressed data - best quality, but largest file size.
- PNG – smaller file size than TIFF, no loss in quality, but not a widely accepted image format.
- JPEG – compressed files; smallest file size, still excellent quality, but not as good as PNG or TIFF. Commonly accepted image format. (recommended as default).

Select the destination database and file format. In most cases, it is recommended to save as a JPEG to the Archive Disk. For a purpose of temporary storage, such as for studies, it is recommended to use the Study Drive.

To change patient information, click the 'Patient...' button (by default, this option is disabled, and can be enabled using IMAGEnet Lite™ configuration). The following dialog box displays to allow modification:



Patient Information dialog box

Please note that ID Code and Last Name fields are mandatory and must be filled out before proceeding. After making the desired changes, click 'Close' to go back to the Save Image dialog box.

Click 'OK' in the Save Image dialog box to save the image. If a message displays that the Archive Disk is full, save images to the Hard Disk until you complete the Archiving Process (see section 14).

The new image will not replace the original, but will be added as a new file. If the patient ID is already registered in the database, IMAGEnet Lite™ adds this image to the patient with the chosen ID. If the patient is not registered (ID does not exist), IMAGEnet Lite™ adds the patient information to the destination database.

Unlike other Windows applications, there is no edit box for specifying the file name in the Save Image dialog box. The image file name is decided by IMAGEnet Lite™ automatically, and IMAGEnet Lite™ will never overwrite an existing image file. Images displayed on the screen are always saved as new images.

CAUTION	The necessary memory capacity and hard-drive capacity may differ by the CPU and working environment of the computer.

8. Using the Tools Menu

Several useful tools can be applied to displayed images to enhance their view. IMAGEnet Lite™ provides:

- Undo
- Negative Image
- Expand Contrast (4 levels)
- Adjust Contrast/Color
- Smooth Image (3 levels)
- Sharpen Image (3 levels)
- Add to 4 Up
- Add to 9 Up
- Annotate Image
- Permanent Graphics
- Delete Graphics

The above tools can be accessed from the [Tools] menu. All tools are immediately applied to the image in the active window. 'Negative Image', 'Adjust Contrast/Color…', 'Annotate Image', Add to 4 Up' and 'Add to 9 Up' may also be accessed from the toolbar.

8.1. Undo

To cancel tools applied to the active image, choose 'Undo' from the [Tools] menu or click the 'Undo' icon on the toolbar. This will undo the tool applied last to the image.

IMAGEnet Lite™ saves the original image to the undo buffer before a tool is applied to the image. By default, IMAGEnet Lite™ has eight undo buffers. This option is configurable via IMAGEnet Lite™ Options (see section 17.4). Per default setting, this allows the user to undo the last eight tools applied. If multiple images are edited at the same time, the 'Undo' may not allow the user to undo all 8 tools for one image, because all image windows share the same undo buffers. If multiple open images are edited, image states for all edited images may be utilizing the undo buffers. Applying yet another change to another open image may not allow reverting back. The original image state may already be removed from the undo buffer. Please note that the original image file is not affected by any changes and it will remain in the system unless purposely deleted.

Note: The 'Add to 4UP' and 'Add to 9UP' can not be undone.

8.2. Negative Image

This tool (icon on the toolbar) converts the image to negative.

8.3. Expand Contrast

This tool expands the contrast of the image. Three different levels of strength are provided to cover a variety of needs (the 'Equalize' option is not available for color images).

8.4. Adjust Contrast/Color

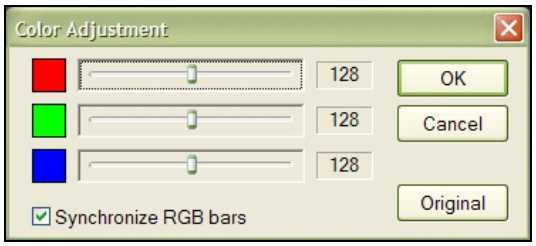
After choosing 'Adjust Contrast/Color...' from the [Tools] menu or clicking the corresponding icon on the toolbar, depending on type of the image, either the 'Adjust Contrast' or the 'Adjust Color' dialog box displays.

For Black and White Images

Adjust Contrast dialog box – (black/white images only)

The graph at the left displays the density histogram of the image. This histogram shows how the brightness of the image is distributed. Adjust the red bar just below the histogram to cover the most crowded portion of the histogram, which is usually a mountain shape. To check how contrast will be stretched before exiting, click 'Preview'. Click 'OK' to exit and stretch contrast of the image permanently.

For Color Images



Adjust Color dialog box – (color images only)

The dialog box has 3 slider bars corresponding to the red, green and blue channels. Adjust these bars to control intensity of each color. To check how color will be adjusted before exiting, click 'Preview'. Click 'OK' to exit and change the color of the image permanently.

8.5. Smooth Image

This tool applies an averaging filter to the image. Three different levels of strength are provided to cover a variety of needs.

8.6. Sharpen Image

This tool applies edge enhancement to the image. Three different levels of strength are provided to cover a variety of needs.

8.7. Add to 4 Up and 9 Up

These tools allow users to add an active image into a 4 Up or a 9 Up composite image window. A composite image window is useful when assembling multiple (up to 4 or up to 9) images on the same display. This assembly of images, or composition, can later be saved as a new image file. Or, as it is more commonly used for, it can be printed out (see section 12).

To add one or more images to a composite, for each image you want to add, open that image in a separate image window, then choose 'Add to 4 Up' or 'Add to 9 Up' from the [Tools] menu, or click the '4 Up' icon or the '9 Up' icon on the toolbar.

If there is a composite image window that is not filled, the active image will be added there. If there is no composite image window or all composite image windows are filled up, a new composite image window is opened for the image. The 4 Up and the 9 Up composite image windows are maintained separately.

Adding a composite image to a composite image is not allowed.

8.8. Annotate Image

This tool (

icon on the toolbar) puts the patient ID, the patient name, the capture date and the image label on the active image as part of the image. This information is permanently written on the image as white text. This tool is quite useful when exporting individual images to other applications or bringing images to another computer. Annotating information on a composite image is not allowed.

Changing annotation text font and size can be made via IMAGEnet Lite™ Options (see section 17.4).

8.9. Permanent Graphics

To print an image with color graphics to a black and white printer, it may be desirable to convert the color graphics to white lines in order to see the graphics more clearly on the print. Exporting an image with color graphics to an

application that does not support the DIB color palette is another use for this function.

Set the image window active, and then select ‘Permanent Graphics’ from the [Tools] menu. Color graphics on the image will be converted into white lines and will be permanently written to the image. If the image has analysis data related to the graphics, the analysis data will be deleted.

8.10. Delete Graphics

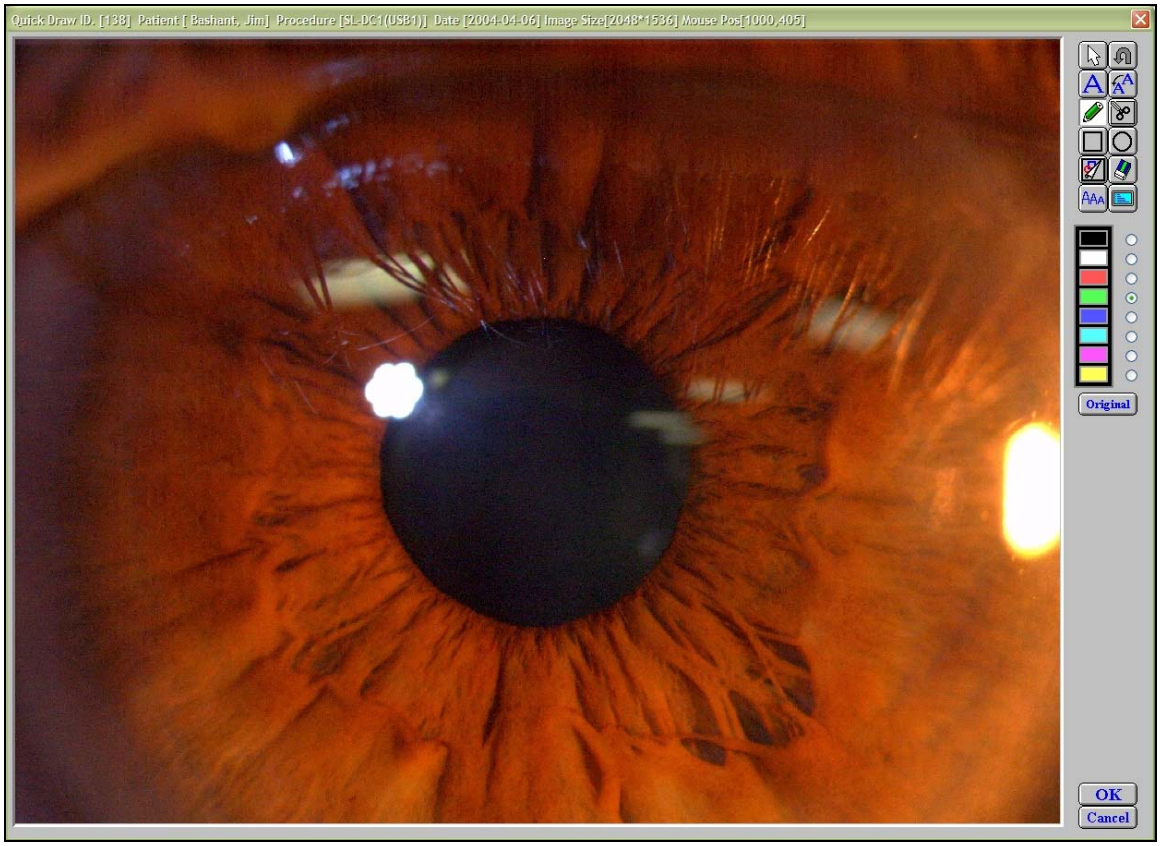
To delete color graphics on an image, set the image window active, then choose ‘Delete Graphics’ from the [Tools] menu. Color graphics on the image will be permanently deleted from the image. If the image has analysis data related to the graphics, the analysis data will also be deleted.

9. Using the TaskPad

9.1. Quick Draw

This utility

provides a variety of tools to annotate and draw on the image.


Quick Draw ID. [138] Patient [Bashant, Jim] Procedure [SL-DC1(USB1)] Date [2004-04-06] Image Size[2048*1536] Mouse Pos[1000,405]
Original
OK
Cancel

Quick Draw dialog box

9.2. AutoMosaic

See section 10 for detailed information on the AutoMosaic utility.

9.3. 2 UP Print

This utility

speeds up the printing process. It is an excellent tool for printing out left and right eye images quickly.

Note: The default header refers to Topcon Medical Systems. This header can be modified by contacting Technical Support.

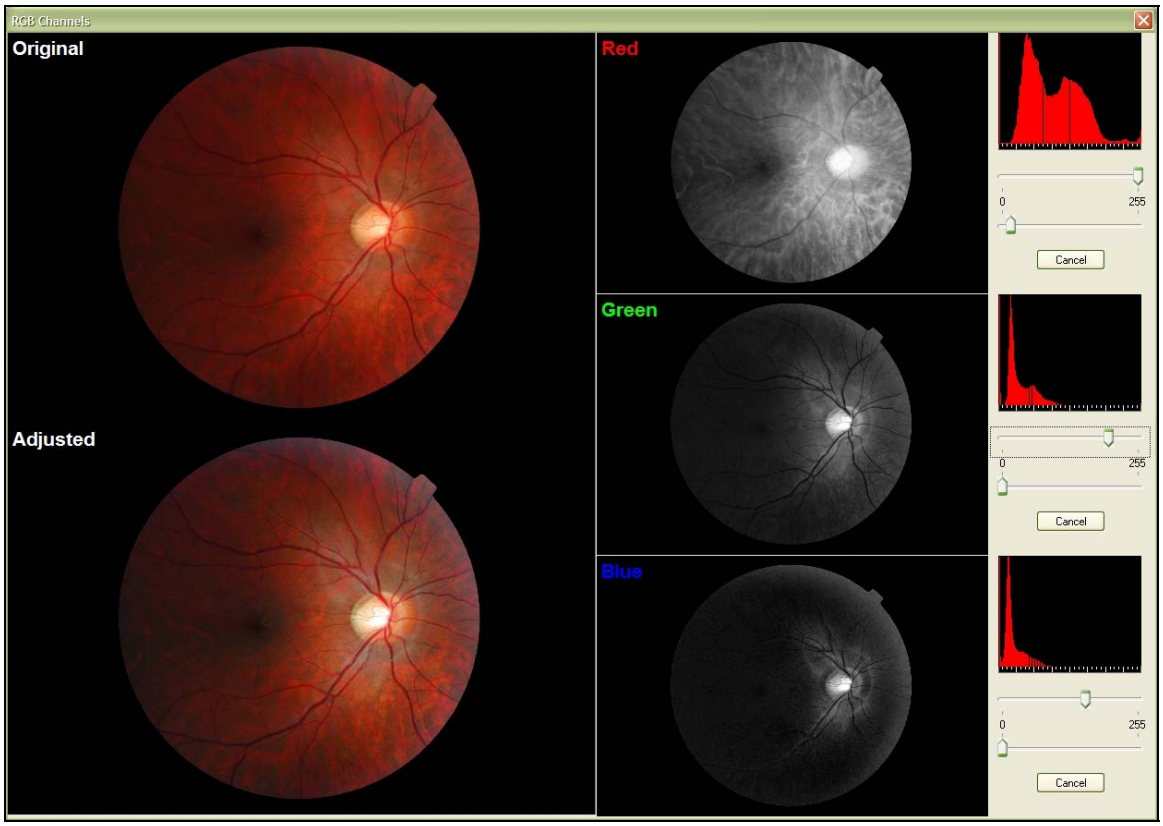
9.4. Stereo Analysis

See section 11 for detailed information on the Stereo Analyzer utility.

9.5. RGB Channels

Use this utility

to adjust color channels for an enhanced viewing of an image.



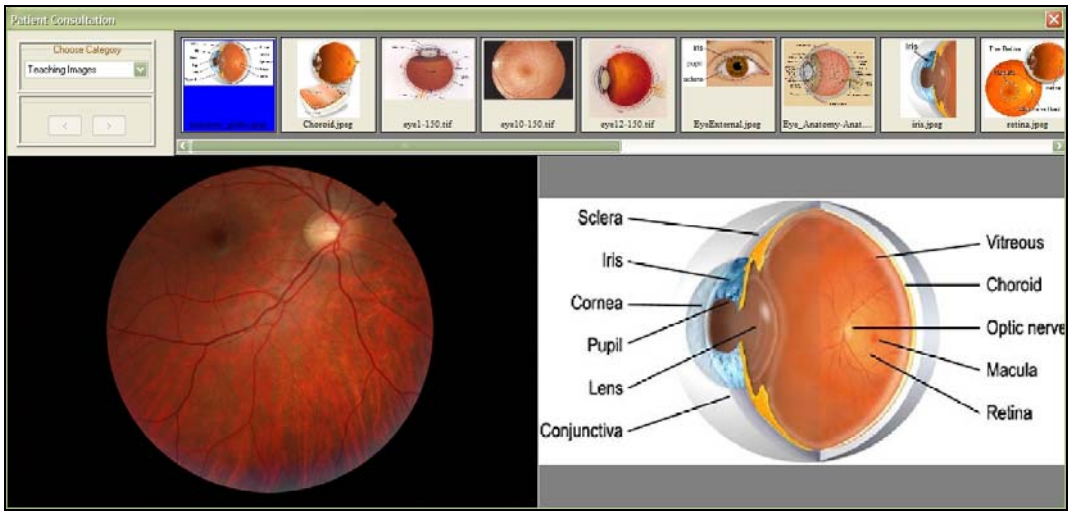
RGB Channels dialog box

Make any necessary adjustments to the individual color channels, and then close the window. You will be prompted to save the changes, if desired.

9.6. Patient Consultation

This utility (

) allows for an easy way to show the patient their eye versus a variety of pathologies, simulated vision, and anatomical eye structures, to help convey information to the patient for better patient compliance.

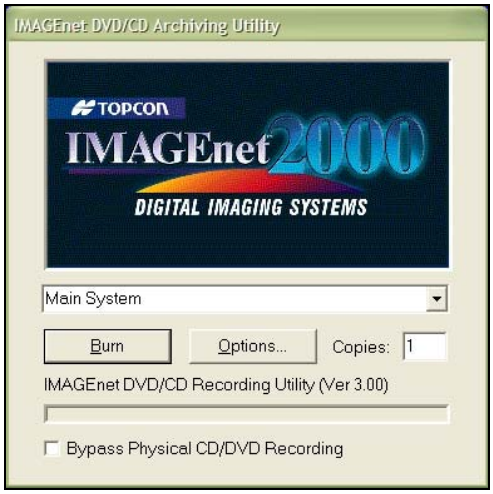


Patient Consultation dialog box

9.7. Record DVD/CD (DVD/CD Archiving Utility)

This utility provides an easy and fast way to record a DVD or CD. It allows the user to:

- Perform the Archiving Process (see section 14).
- Record images for select patients (see section 15).

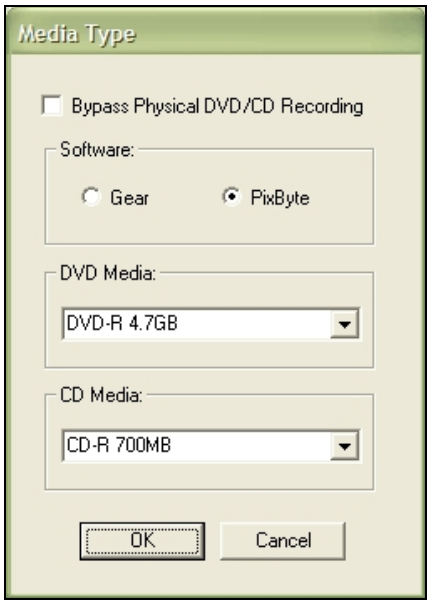


DVD/CD Archiving Utility dialog box

Note: This utility should not be used for exporting select images for other use (i.e. PowerPoint and other presentation purposes). For exporting images, see sections 13.6 and 13.7.

OPTIONS

The main dialog box includes an option for the quantity of CD/DVDs to be created. Clicking 'Options…' to display the following dialog box:



The option to bypass physical DVD/CD recording refers to the Archiving Process (see section 14.3).

The remaining options allow the user to select the type of burning software and media to use. However, unless specifically instructed, these default options should remain unchanged. Gear software is an older utility not installed on new systems; therefore it may not be available for use.

10. AutoMosaic Utility

This utility automatically stitches a series of retinal images together to form a larger mosaic-like composite image. It provides a unique function for the practitioner to evaluate the extent and severity of lesions across the retina.

10.1. Starting AutoMosaic

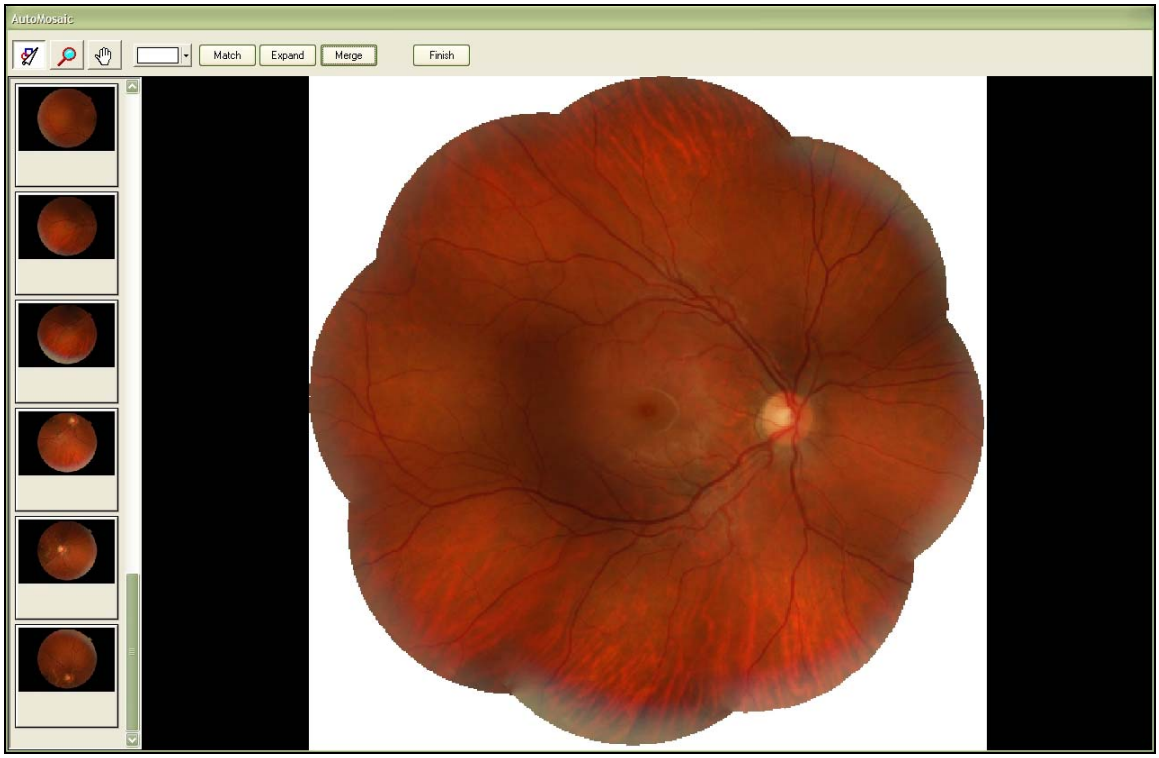
Please follow section 6 to display a thumbnail window for a select patient. Highlight the desired thumbnail images and select 'AutoMosaic' from the 'Utilities' menu or click

on the taskpad. The following window displays, and the program automatically starts the following alignment and merge process:

(1) Automatically identify the image mask

(2) Automatically align the images based on their retinal features

(3) Automatically merge the images together to form a mosaic composite



AutoMosaic dialog box

10.2. Manual Functions

Although rarely used, the AutoMosaic utility also provides functions to allow the user to adjust the image composite manually.

	Toggle to show/hide the mask applied to each image.
	Toggle between zoom and normal mode. Click this icon and then use left mouse click to zoom in, and use right mouse click to zoom out.
	Pan images when in zoom mode.
	Change the background color.
	Start the image alignment process.
	Expand the background canvas to include all images.
	Merge all images (remove boundary) to form a mosaic composite.
	Finish and exit the AutoMosaic.
	Selected image.
	Unselected image.
	Image excluded by the alignment process, due to no match with other images.

To modify each individual image, right-click the image in the composite window to display the following menu:

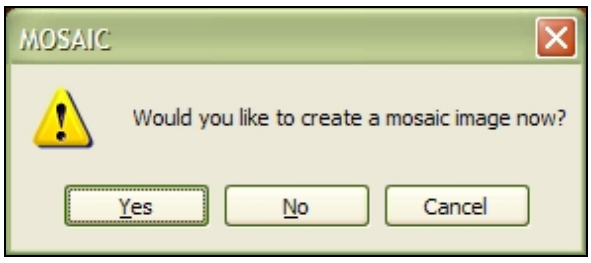
These options allow the user to:

1. Arrange and lock the relative order between images
2. Rotate each individual image
3. Adjust image contrast
4. Modify the applied mask
5. Delete the image

10.3. Exiting AutoMosaic

Once the alignment and the merge processes are complete, click 'Finish'

. The following dialog box displays:



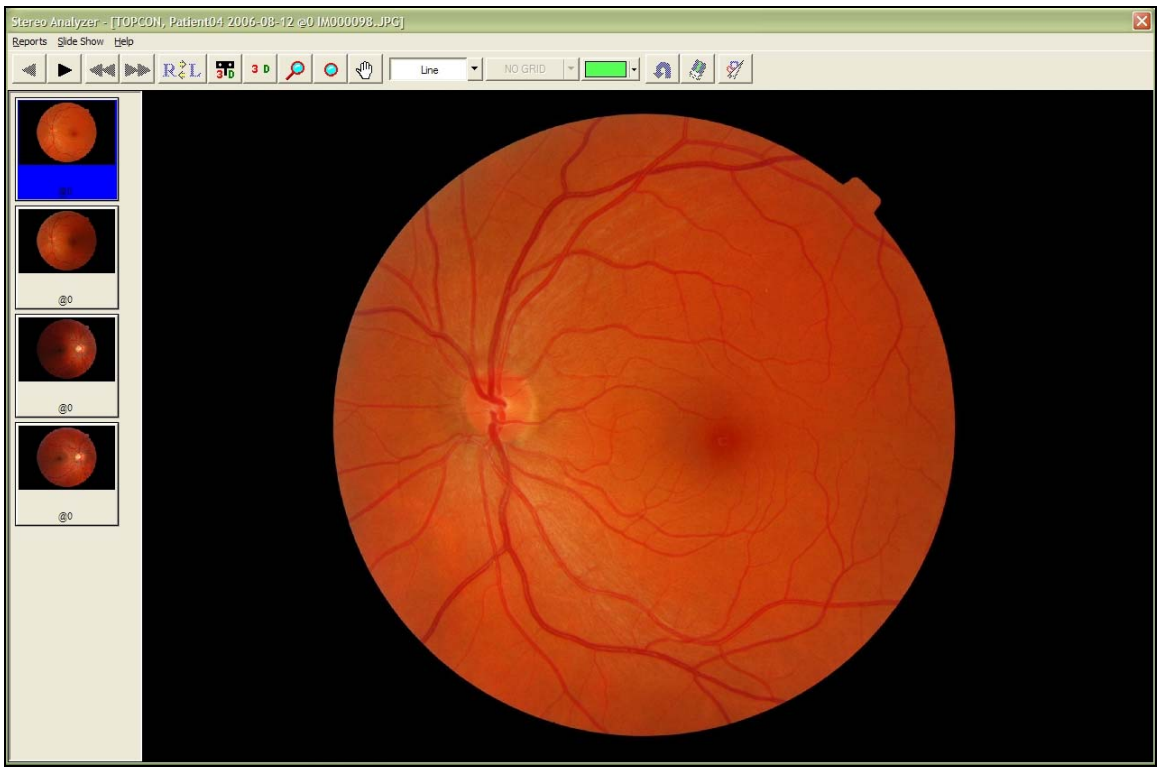
Click 'Yes' to create the final mosaic composite in a new image window in IMAGEnet Lite™. The mosaic image can then be saved into a desired database (see section 7) or printed (see section 12).

11. Stereo Analyzer Utility

The Stereo Analyzer Utility is a unique set of tools that allows the practitioner to perform critical data analysis and measurements while viewing images in stereo using a hand-held stereo viewer. The measurement functions included in this module are: Linear, Area, and Cup to Disk Ratio.

11.1. Starting Stereo Analyzer

See section 6 to display a thumbnail window for a select patient. Highlight the desired thumbnail images and select 'Stereo Analyzer' from the 'Utilities' menu or click on the taskpad. The following single-view window displays:



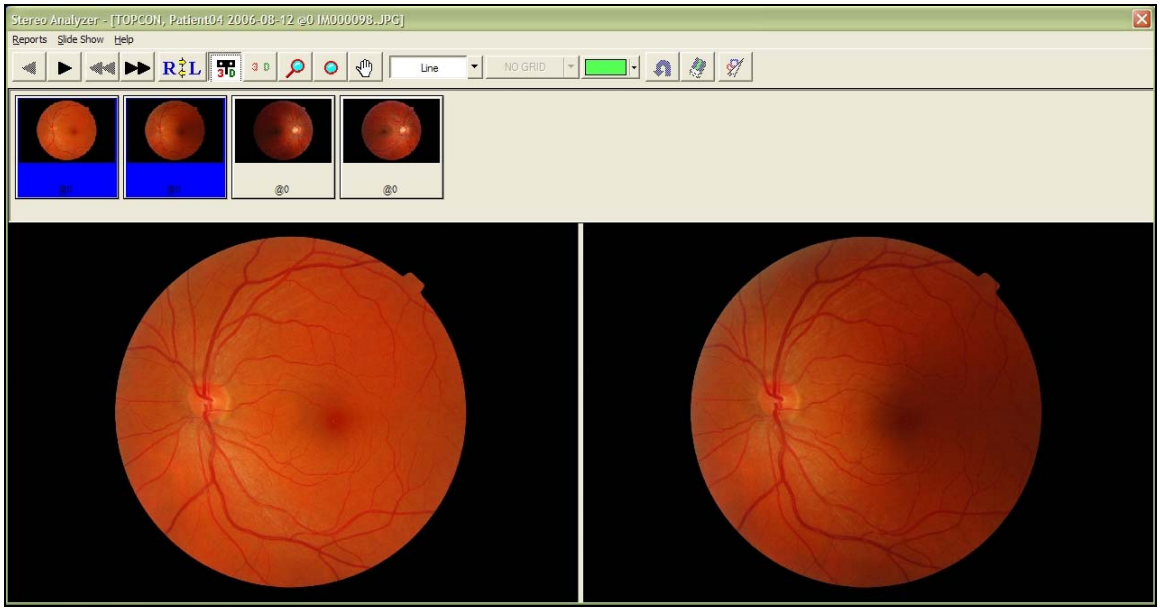
All thumbnail images marked on the thumbnail window display on the left-hand side of the Stereo Analyzer window as thumbnails, and the image in focus (marked with blue background) is displayed in large scale.

11.2. Functions

Stereo Viewing Icons

	Toggle between single-view and stereo-view. (For use with a hand-held stereo viewer.)

Once this button is clicked, the following stereo-view window displays:



Please note that in stereo mode, all analysis and measurement functions are applied only to the image on the left. The image on the right is for stereo effect.

	3D Image View - requires an additional hardware device, CrystalEyes™.

Note: CrystalEyes™ for IMAGEnet Lite™ is no longer available.

	Reverse the order of the stereo pair to correct for the reversed stereo effect.

Image Navigation

You can navigate through images by clicking on their thumbnails, or using the following buttons:

	Advance to the previous/next single image.
	Advance to the previous/next pair of images.

From the menu bar, you can also start/stop a Slide Show of all images and specify the slide delay in seconds. In single-view mode, the display cycles through every image. In stereo-view mode, the display cycles through every pair of images.

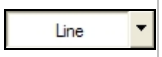
Magnifying/Drawing Icons

	Toggle between zoom and normal mode. In zoom mode, use left mouse click to zoom in, and use right mouse click to zoom out.

Stereo Effect Adjustment
In the stereo view mode and zoom mode, left click and then right click on the left image to activate horizontal and vertical scroll bars. Using scroll bars on the left image will move both left and right images simultaneously. Moving scroll bars on the right image will only move that single image. This functionality allows the adjustment of a desired 3D view when using an external stereo viewer device.

	Enable/disable the Magnifying Glass mode. When enabled, hold down left mouse button and move the magnified view through desired areas.
	Pan images when in zoom mode.
	Undo the last operation.
	Delete all graphics in the window. (Graphics on the original image cannot be deleted.)
	Toggle to show/hide graphics and measurements, for a better view of the underlying image.

11.3. Analysis and Measurement

	Graphics color drop-down box. Allows six choices of line color for marking the analysis and measurement.
	The measurement drop-down combo box. Allows the choice of the analysis and measurement functions listed below. Once a function is selected, the combo box appears pressed.

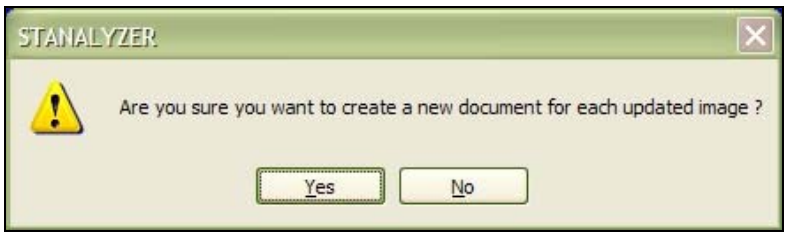
Line
This function provides the linear measurement of a distance on the retinal image. Move cursor to the starting point; drag the cursor to the end point, and release. The distance is calculated and displayed.

Area
This function provides the area measurement (displays in both mm sq. unit and in Disc Area unit). In order to measure pathology, move cursor to the edge of the lesion, then trace around the edge while holding down the left mouse button. After tracing around the pathology, release the mouse button. The traced area is calculated and displays.

Cup-to-Disc Ratio
This function allows the measurement of cup-to-disc ratio. Trace both the cup area and the disk area, each individually, using the following operation. Move cursor to the edge of the cup/disk, left click to anchor a point, and then continue to move on the edge of cup/disk and mark anchor points. The program automatically connects anchor points using a curve. After the cup/disk is traced, right click the mouse. The traced area is closed and calculated. After both cup and disk are traced, the program automatically calculates and displays the measurement and the ratio respectively.

11.4. Exiting Stereo Analyzer

To exit the Stereo Analyzer utility, click the 'X' on the upper right corner of the window. The following dialog box displays:



Click 'Yes' to create and display the analyzed image(s) in new image window(s) in IMAGEnet Lite™. The analyzed image(s) can then be saved into a desired database (see section 7) or printed (see section 12).

12. Printing Images

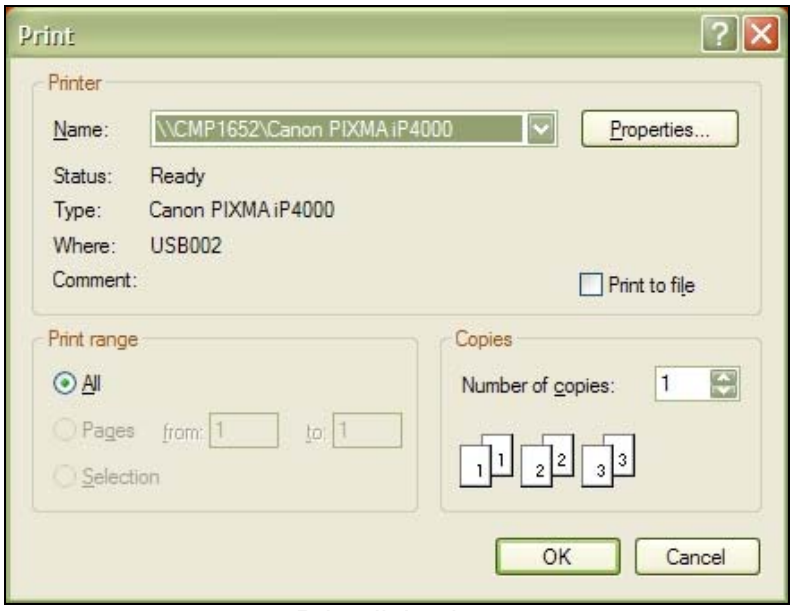
IMAGEnet Lite™ allows printing of images displayed on the screen using a Windows installed printer. There are 4 menu items related to the print operation in the [File] menu:

- Print... Print the active image window.
- Print Preview Preview print on the screen.
- Print Setup... Set up the Windows printer.
- Print Template… Select the print template.

Except for the last item, 'Print Template...', the dialog boxes of the above items are common to all Windows applications. However, some options in these dialog boxes may not be available or may be inapplicable to IMAGEnet Lite™.

12.1. Print Dialog Box

To print, activate the desired image window, then choose 'Print...' from the [File] menu or click the 'Print' icon on the toolbar or taskpad. A dialog box similar to the one below displays to set print options:

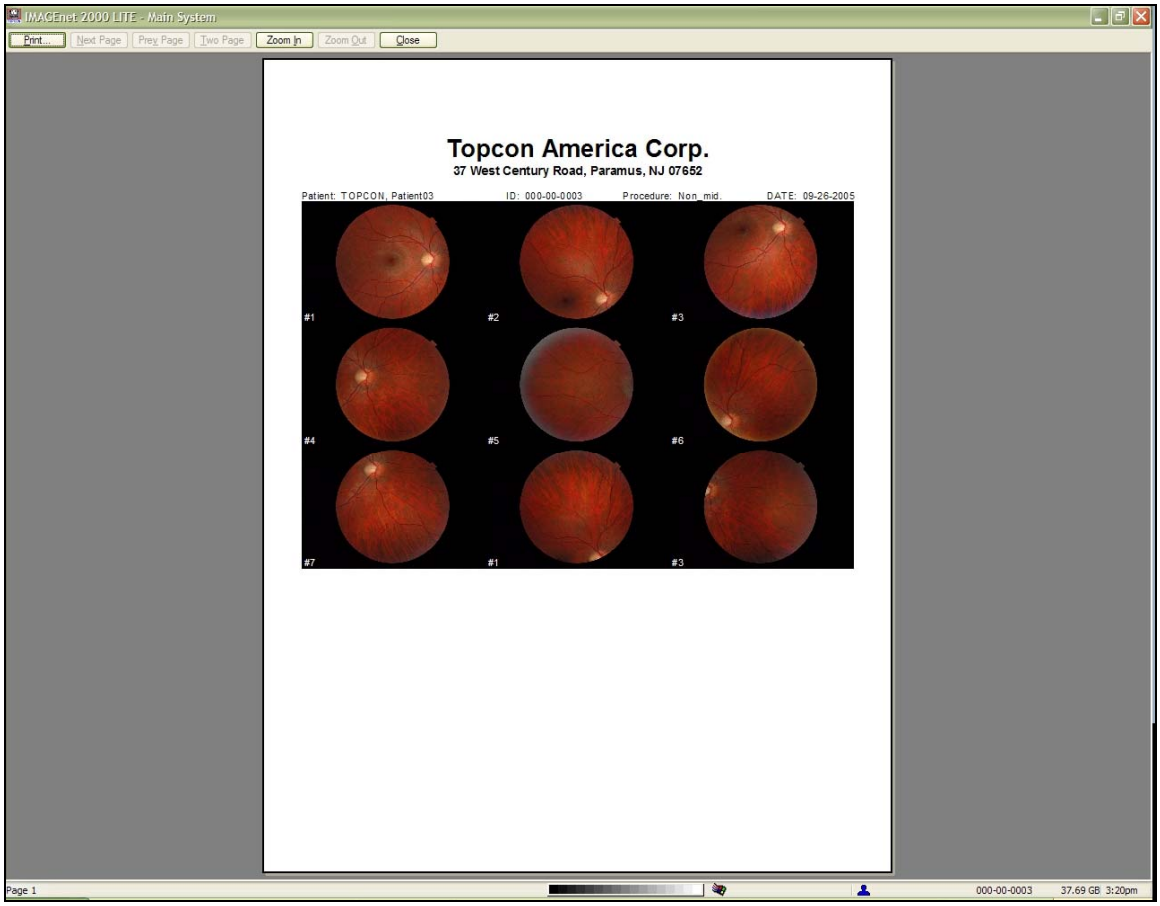


Print dialog box

If desired, adjust the available properties; then click 'OK' to start printing.

12.2. Print Preview Screen

To check how the images will print on paper before making a print, choose 'Print preview' from the [File] menu. The following dialog box displays:



Print Preview screen

Images will print out exactly as shown on a print preview screen.

Note: The default header refers to Topcon Medical Systems. This header can be modified by contacting Technical Support.

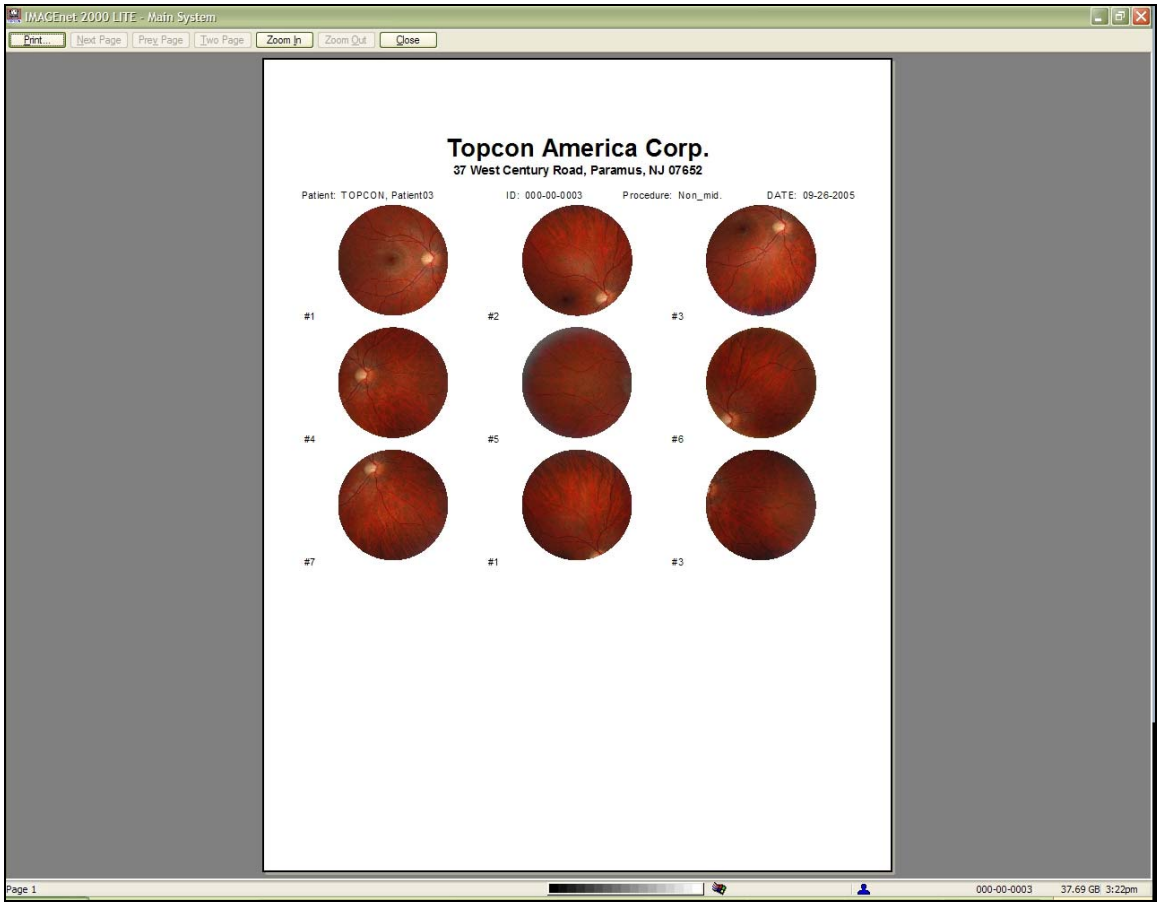
Removing Black Mask

It is possible to print images with or without the black background surrounding images, if the option 'Remove black mask' is selected in IMAGEnet Lite™ Options (see section 17.1).

These exceptions apply to the black mask removal option:

- If images are too dark, the removal process may remove parts or the entire image if that image or its parts are not distinguishable from the surrounding black background.

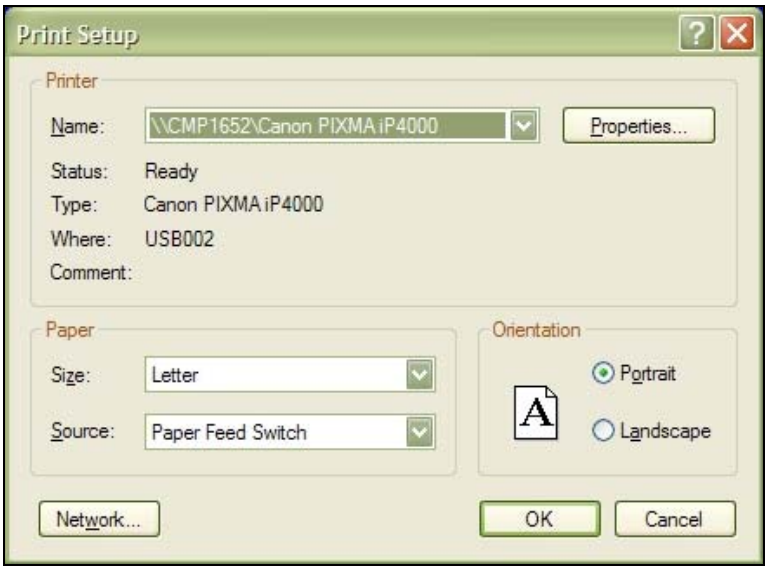
- Images created using the AutoMosaic utility may not be printed with the 'Remove black mask' option enabled. To save black ink, you may use a white background when creating a mosaic composite (see section 10.2).
- Images containing annotations allow the removal process to remove black mask in area only outside of the stamped annotations. Stamped annotations are considered by the removal algorithm as part of the image and will be treated as its boundary marks.



Print Preview screen – images with black mask removed

12.3. Print Setup Dialog Box

The 'Print Setup' dialog box allows the user to change printer settings used during each IMAGEnet Lite™ session. Select the proper printer, paper size and orientation to match the selected print template. A dialog box similar to the one below displays to set print options:



Print Setup dialog box

12.4. Selecting Print Template

A print template selection is required to ensure proper printing. Without a print template selected, the user may receive error messages. Each print template can be customized, adding specific image information to the printout. To select a print template, choose 'Print Template...' from the [File] menu. The following dialog box displays to select a print template:

Select Print Template dialog box

Select the desired print template from the template list, then click 'OK'.

Note: The selection of a print template needs to be made only once.

12.5. Print Adjustment Panel

When printing a composite using the precise print mode (if option 'Precise composite printing' is selected in IMAGEnet Lite™ Options - see section 17.1), after choosing 'Print...' from the [File] menu or clicking the 'Print' icon on the toolbar or taskpad, the print adjustment panel displays:

Print Adjustment panel

The print adjustment panel provides the ability to temporarily adjust brightness and contrast of each image in the composite individually. Adjustments made in the print adjustment panel are temporary. The original composite will never be changed.

Note: Graphics and related information do not display in the print adjustment panel.

When the adjustment panel displays, the adjustment mode is set to 'Whole', which means the whole composite will be adjusted at once. The white and black levels of the whole composite can be adjusted using the arrow buttons at the upper right side of the panel.

To adjust only select images, click those images in the panel to mark them, and then adjust the white and the black levels. The adjustment will only apply to the images marked.

To cancel the adjustment and return to the original condition, click 'Original'. To start printing, click 'Print'. The print adjustment panel disappears and the print dialog box displays.

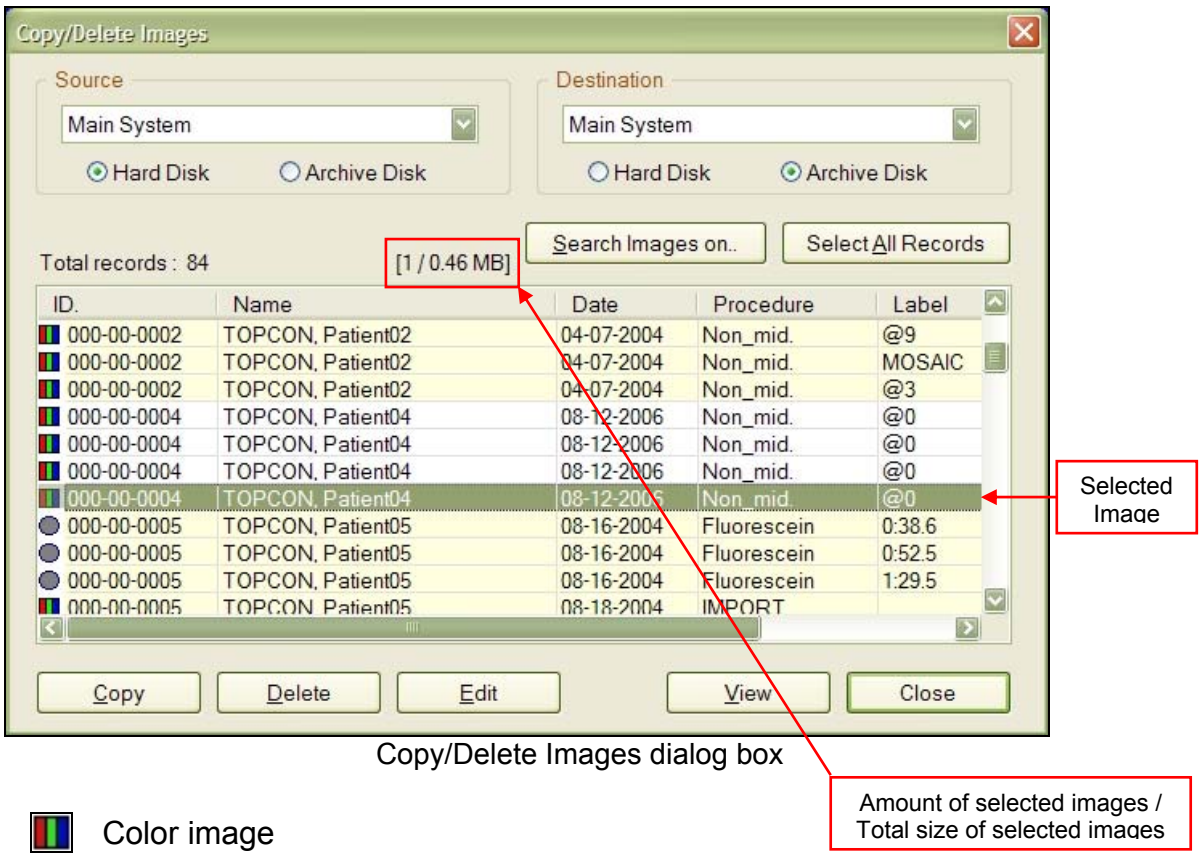
Note: This option does not apply to 'Quick 2 UP' printing.

13. Using Utilities

13.1. Copying/Deleting Images

CAUTION	Any attempt to move, delete or rename images outside of IMAGEnet Lite™ may cause database corruptions. This utility must be used for all copying, moving or deleting of images.

To copy images from one database to another, to copy images from system hard disk to archive disk, to delete images, or for any other copying/moving/deleting of images, select 'Copy/Delete Images...' from the [Utilities] menu. The following dialog box displays:



Copy/Delete Images dialog box

Color image

B/W image

Note: Columns can be sorted by clicking on the column header.

Viewing Images

To view an image before copying or deleting, select an image, then click 'View' or double-click the image.

Copying Images

Select the source database or storage drive from the 'Source' drop-down list. Choose either 'Hard Disk' or 'Archive Disk', when applicable. All the images in the selected disk or database display in the image list box.

Select the destination database or storage drive from the 'Destination' drop-down list. Choose either 'Hard Disk' or 'Archive Disk', when applicable.

From the image list, select images to copy to the destination. Selected images are highlighted. Users can hold down the CTRL key to keep adding individual images to the selection; or hold down the SHIFT key to select a block of images. To select all records in the list box, click 'Select All Records'. Click 'Copy' to start copying the images. A progress bar displays.

The below applies to the 'Hard Disk' location only:

- Images already copied to 'Archive Disk' display in a white background.
- Images not copied to 'Archive Disk' display in a yellow background.

⚠ CAUTION	The necessary memory capacity and hard-drive capacity may differ by the CPU and working environment of the computer.

Deleting Images

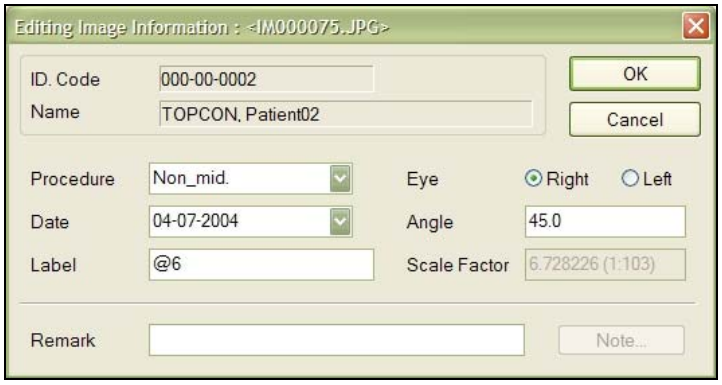
Select the source database or storage drive from the 'Source' drop-down list. Choose either 'Hard Disk' or 'Archive Disk', when applicable. All the images in the selected disk of the database display in the image list box.

From the image list, select images to delete from the source database. Selected images are highlighted. Users can hold down the CTRL key to keep adding individual images to the selection; or hold down the SHIFT key to select a block of images. To select all records in the list box, click 'Select All Records'. Click 'Delete' to start deleting the images. A confirmation dialog box displays before the images are actually deleted. There is no progress bar for this process. Instead, an hourglass displays and the user must wait until the highlighted images disappear. This could take a considerable amount of time.

Editing Image Information

Select the source database or storage drive from the 'Source' drop-down list. Choose either 'Hard Disk' or 'Archive Disk', when applicable. All images in the selected disk or database display in the image list box.

From the image list, select an image and click 'Edit' to edit the image information; or follow instructions above to view the image, and then click 'Edit' in the image view window. The following dialog box displays to edit the image information:



Edit Image Information dialog box

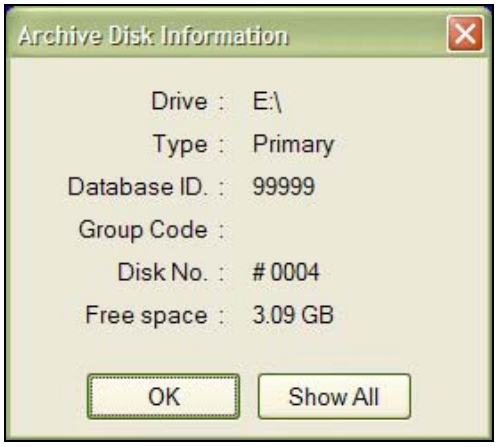
Click 'OK' after you have made the necessary changes.

13.2. Checking Database Files

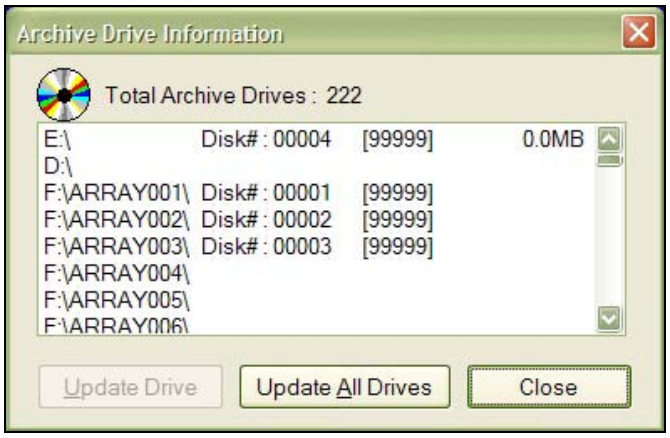
If having trouble accessing a system database, choose 'Check Database Files' from the [Utilities] menu. IMAGEnet Lite™ scans the patient database files and the image database files, and tries to fix problems if any are found. Since this function can take a long time, it should not be run frequently. If problems are still apparent after using this utility, please call the TOPCON Technical Support Team.

13.3. Showing Archive Disk Information

To check the contents of an archive disk, select 'Show Archive Disk Information' from the [Utilities] menu. This displays information about the archive disk currently mounted in the drive.



Click 'Show All' to view information about all the archive disks.



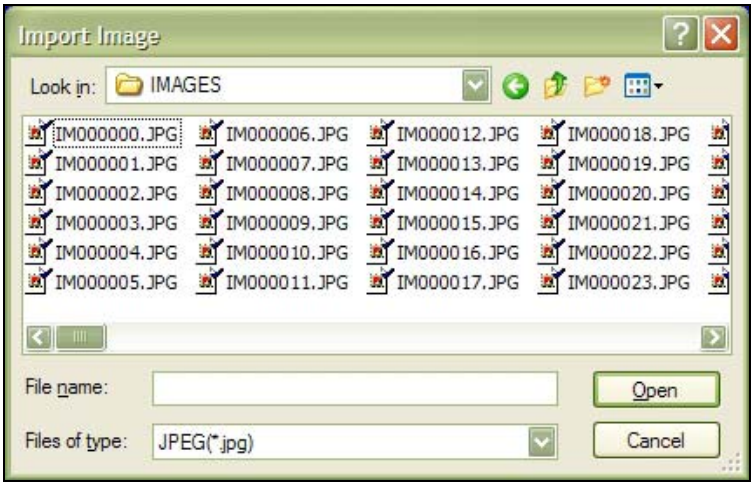
Click 'Update All Drives' to refresh drive status.

13.4. Initializing Archive Disk

If the Archive Disk cannot be accessed, you must first initialize it. IMAGEnet Lite™ assigns a new disk number to the disk, and creates necessary directories and files on the disk. The disk number assigned to the Archive Disk will be reported when the initialization completes.

13.5. Importing an Image from a File

To import an image from a disk file, choose 'Import Image...' from the [Utilities] menu. The following dialog box displays to specify a file or to browse the disk:



Type or select the image file, then click 'OK'. The imported image displays in a new image window.

The image types that can be imported to IMAGEnet Lite™ are:

- TIF 8-bit gray scale and 24-bit color
- BMP 8-bit gray scale, 24-bit color and 8-bit palette color

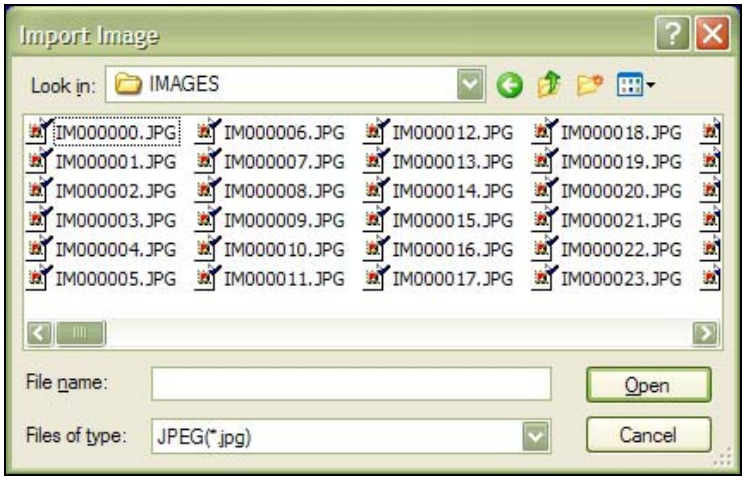
- JPEG (.JPG) 8-bit gray scale, 24-bit color
- DICOM (.DCM) 8-bit gray scale or 24-bit color (non-compressed format)
- PNG 16-bit gray scale, or 48-bit color (lossless compression)

The Digital Imaging and Communications in Medicine (DICOM) is a standard for the communication of medical images and associated information. The file format saved by the import/export function uses the specification for Visible Light Image for Photography, DRAFT STANDARD FOR TRIAL USE.

The BMP 8-bit palette color image is converted into the 24-bit color image.

13.6. Exporting an Image to a File

To export an image to a disk file, activate the image window first by clicking anywhere on the window or by using several click actions of the right mouse button. Then choose 'Export Image...' from the [Utilities] menu. The following dialog box displays to specify a file to browse the disk:



Note: Only 1 image at a time can be exported.

Type or select the image file, then click 'OK'. The active image will be exported to the disk file. If an existing image file was selected, that file will be overwritten.

The image types that can be exported from IMAGEnet Lite™ are:

- TIF 8-bit gray scale or 24-bit color
- BMP 8-bit gray scale or 24-bit color
- JPEG (.JPG) 8-bit gray scale or 24-bit color
- DICOM (.DCM) 8-bit gray scale or 24-bit color (non-compressed format)
- PNG 16-bit gray scale, or 48-bit color (lossless compression)

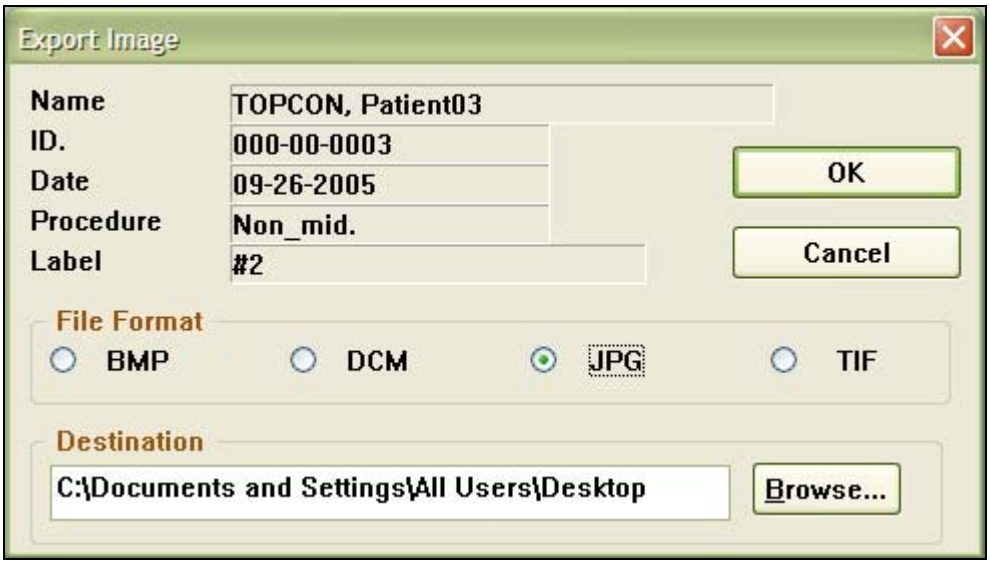
The Digital Imaging and Communications in Medicine (DICOM) is a standard for the communication of medical images and associated information. The file format

saved by the import/export function uses the specification for Visible Light Image for Photography, DRAFT STANDARD FOR TRIAL USE.

If a JPEG file is chosen, a dialog box displays asking to choose the image quality. Choose a quality for the saved image. The higher the image quality is, the bigger the file size becomes. 'High' is the best for most cases, it provides a good balance of image quality and file size.

13.7. Multi-Export Utility (Optional)

This optional utility exports multiple images at one time. Highlight the thumbnail images you would like to export. Then select 'Multi-Export' from the Utilities menu. The following dialog box displays:



Select the desired destination and file format, then click 'OK'. All selected images are exported to the chosen destination. Each exported image filename contains the patient ID, the date the image was captured, and the capture type.

13.8. Transferring Image to Clipboard

As a way to share image data among Windows applications, IMAGEnet Lite™ provides a feature to transfer image data to the Windows Clipboard. To do this, first make the desired image window active, and then choose 'Transfer to Clipboard' from the [Utilities] menu.

Image data is copied to the Clipboard as a DIB (Device Independent Bitmap) including graphics information on the image, if it exists. Most Windows applications should be able to 'paste' the image to their document.

14. Archiving Process

14.1. Overview

The Archiving Process is an integral part of the system database design of IMAGEnet Lite™ (see section 3.1). Before the Archiving Process can be performed, the patient data are "mastered" in a special partition of the computer hard-drive referred to as the Archive Disk.

The Archive Disk has a capacity of approximately 4.0GB (620MB in older systems). Images being captured should be saved directly to the Archive Disk. When the Archive Disk is full, a message displays indicating that there is insufficient space on the Archive Disk. It is then time to perform the Archiving Process. It is recommended to start the Archiving Process only when the Archive Disk is full. Otherwise, valuable storage space will be under-utilized.

The Archiving Process consists of 2 stages, which the Archiving Utility wizard executes automatically, one after another.

The 1st stage of the Archiving Process allows patient images and information to be stored (archived) permanently to a DVD or a CD for older systems. During every Archiving Process, these DVD/CDs are sequentially numbered (0001-9999) for easy reference of patient information, for access to the DVD/CD when that information no longer resides on any Array Drive.

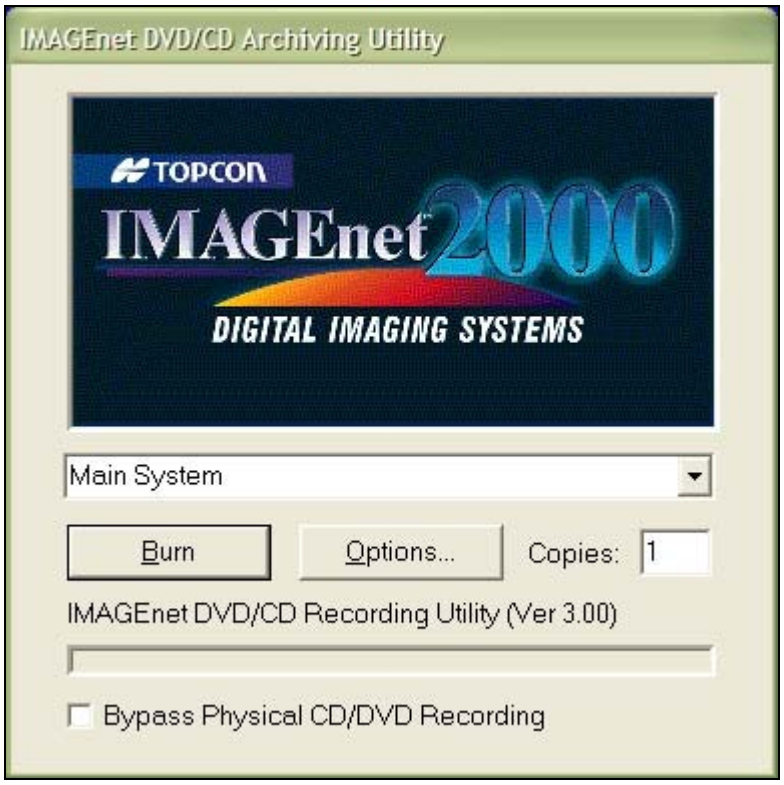
The 2nd stage of the Archiving Process copies all contents of the Archive Disk to one of unique folders in another partition of the computer hard-drive referred to as the Array Drive. Once the copy process is successfully completed and verified by the utility, the Archive Disk contents are purged and the Archive Disk reference number is incremented, allowing the user to save new information into the new Archive Disk. In contrast to the DVD/CD, the Array Drive is only a temporary storage location (see section 3.3).

14.2. Stage 1 – Recording a DVD/CD

1. Select ‘Record DVD/CD’ from the ‘Utilities’ menu or click on the taskpad to open ‘IMAGEnet DVD/CD Archiving Utility’ (see section 9.7).

2. Select ‘Main System’ from the destination drop-down list.

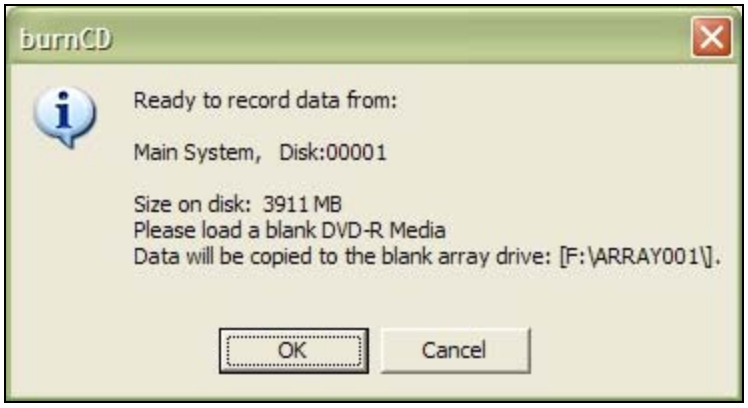
Note: If uniquely customized, your system database may have a different name than ‘Main System’.



DVD/CD Archiving Utility dialog box

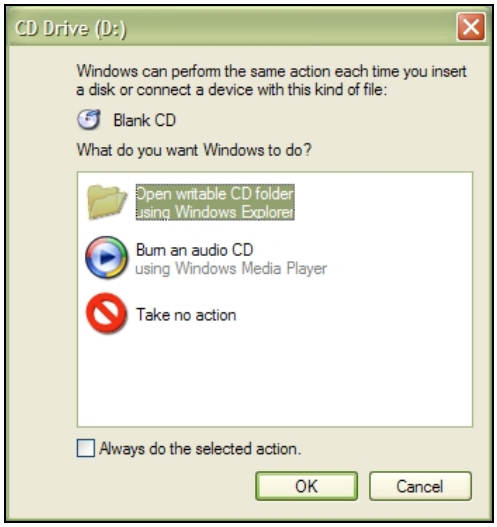
3. Ensure the option 'Bypass Physical CD/DVD Recording' is unchecked.

4. Click 'Burn' to start the Archiving Process. The burnCD dialog box displays with the following information:
   - Database name: 'Main System'
   - Archive Disk number to be processed
   - Size of data on the Archive Disk
   - Type of media to place into the burner (DVD-R or CD-R)
   - Physical location where the Archive Disk contents will be stored in the Array Drive during Stage 2 of the Archiving Process

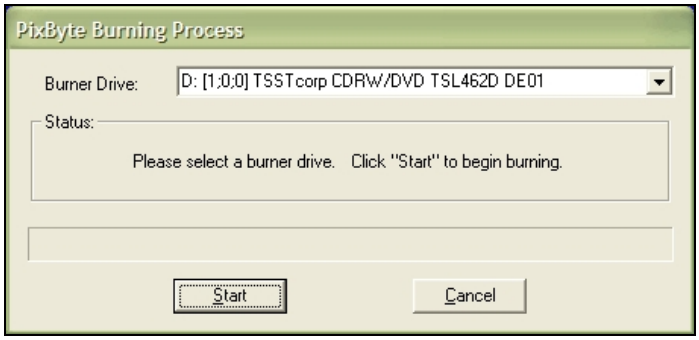

burnCD
Ready to record data from:
Main System, Disk:00001
Size on disk: 3911 MB
Please load a blank DVD-R Media
Data will be copied to the blank array drive: [F:\ARRAY001\].
OK
Cancel

burnCD dialog box

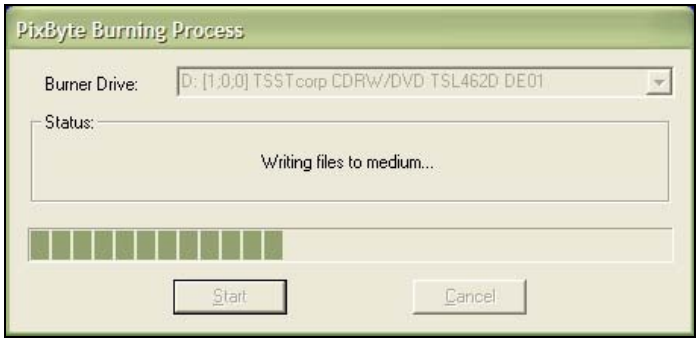
5. Insert an appropriate media disc into the burner drive, as indicated in the burnCD dialog box. If Windows automatically displays the action selection dialog box, click ‘Cancel’ to close it:


CD Drive (D:)
Windows can perform the same action each time you insert a disk or connect a device with this kind of file:
Blank CD
What do you want Windows to do?
Open writable CD folder using Windows Explorer
Burn an audio CD using Windows Media Player
Take no action
Always do the selected action.
OK
Cancel

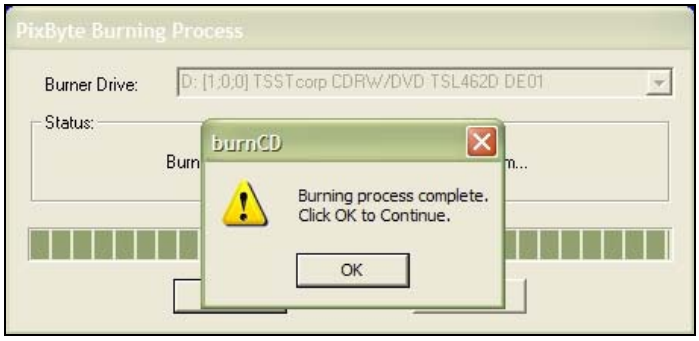
6. Click ‘OK’ on the burnCD dialog box. The following dialog box displays to select the burner drive:



7. Select the correct burner drive from the drop-down list and then click ‘Start’.
8. Wait until the burning process completes.



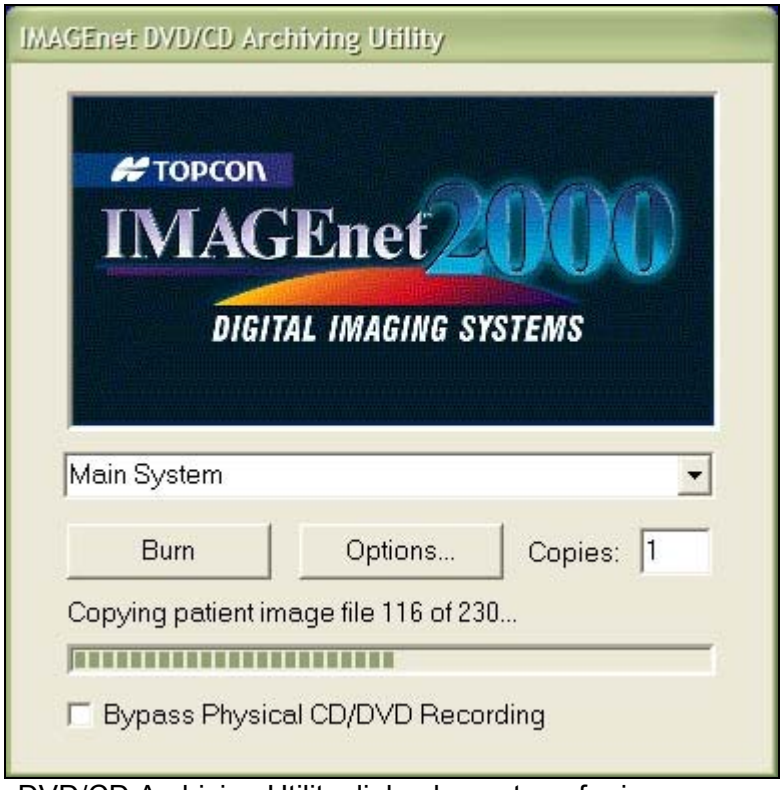
9. Click ‘OK’ to eject the disk automatically.



14.3. Stage 2 – Archive-to-Array Transfer

Once the DVD/CD is recorded successfully, the Archiving Utility automatically initiates the transfer of all data from the Archive Disk to the Array Disk on one of the system’s Array Drives (see section 3.3). The approximate time to complete this stage is 20 minutes; however, it may vary significantly depending on system’s hard-drive and burner’s speeds, the amount of files and the total size of data to be processed, and the type of media disc used.

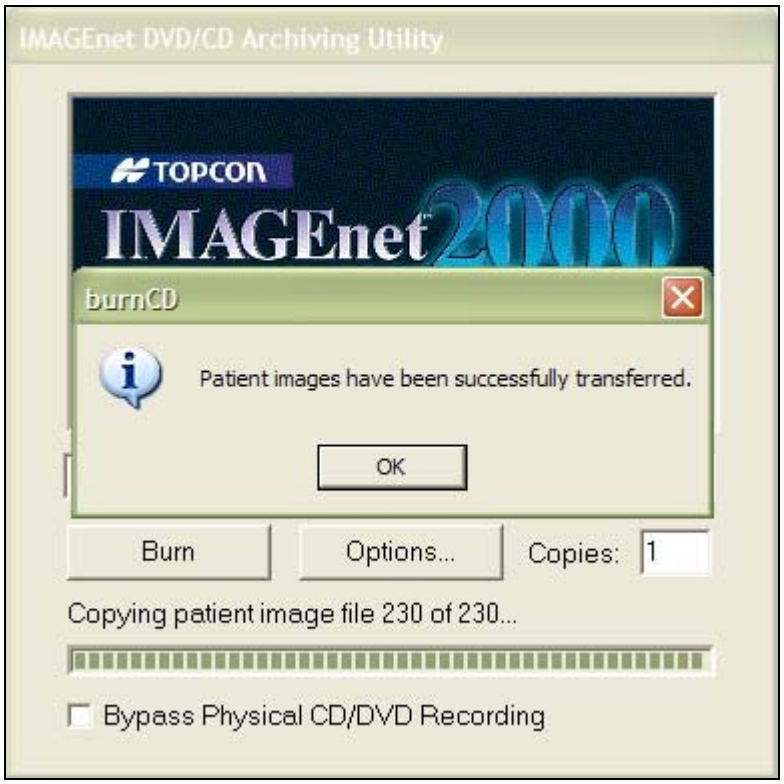
The progress is shown on the bottom of the Archiving Utility dialog box:



DVD/CD Archiving Utility dialog box – transfer in progress

⚠ CAUTION	While this stage is in progress, do not click with the mouse button anywhere outside this window. Leave the system idle to complete the process before attempting to continue any work.

When complete, a prompt displays:



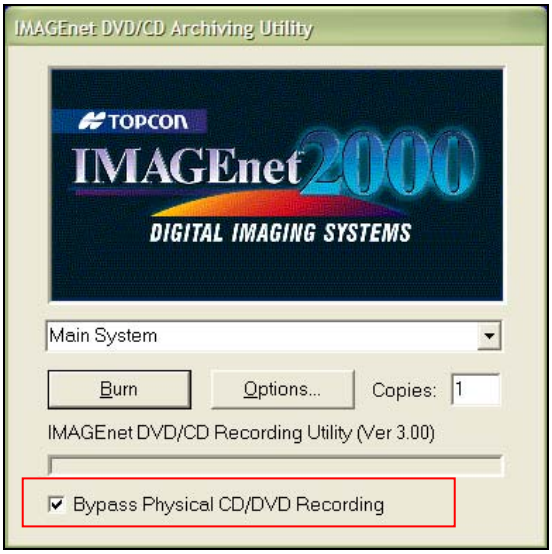
Click ‘OK’ to complete the process. The utility closes and silently increments the Archive Disk reference number. For confirmation that the Archiving Process completed successfully, see section 13.3 to view the ‘Archive Disk Information’, and verify that the Archive Disk number was incremented successfully.

14.4. Skipping Physical Burning Process of DVD/CD

In the event that a DVD/CD media disc is not available, yet the Archiving Process has to be performed to allow users to save more images into the Archive Disk, it is possible to temporarily bypass Stage 1 of the archiving process.

1. Select 'Record DVD/CD' from the 'Utilities' menu or click on the taskpad to open 'IMAGEnet DVD/CD Archiving Utility' (see section 9.7).

2. Select 'Main System' from the destination drop-down list.

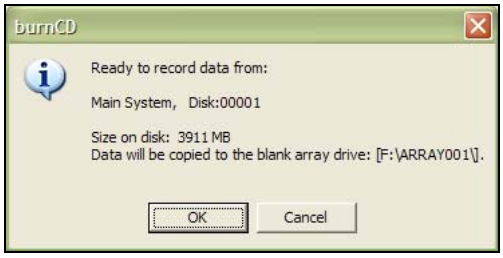


DVD/CD Archiving Utility dialog box

3. Ensure the option 'Bypass Physical CD/DVD Recording' is checked.

4. Click the 'Burn' button to start the Archiving Process. The burnCD dialog box displays with the following information:

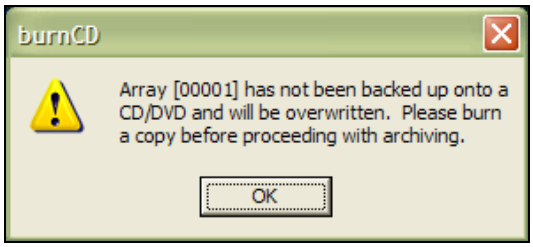
   - Database name: 'Main System'
   - Archive Disk number to be processed
   - Size of data on the Archive Disk
   - Physical location where the Archive Disk contents will be stored in the Array Drive during Stage 2 of the Archiving Process



burnCD dialog box

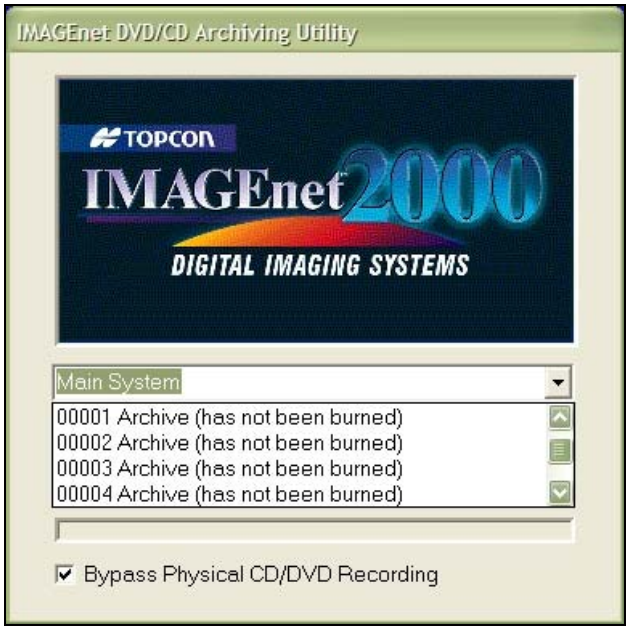
5. Click ‘OK’ on the burnCD dialog box. The Archiving Process skips the physical media disc recording and advances to Stage 2 (see section 14.3.).

The DVD/CD Archiving Utility keeps track of the bypassed disk numbers to safeguard the user from overwriting non-burned Array Disks. If all Array Drives are full and none of the Array Disks contained within are recorded onto DVD/CDs, the following prompt displays and the Archiving Utility prevents proceeding with Archive-to-Array transfer until at least one Array Disk is backed up to a physical media disc:


burnCD
Array [00001] has not been backed up onto a CD/DVD and will be overwritten. Please burn a copy before proceeding with archiving.
OK

Click ‘OK’ and the process will abort.

To go back at a later time and record the physical copies, open the ‘DVD/CD Archiving Utility’ and from the drop-down menu choose the disk number you would like to burn:


IMAGEnet DVD/CD Archiving Utility
TOPCON
IMAGEnet 2000
DIGITAL IMAGING SYSTEMS
Main System
00001 Archive (has not been burned)
00002 Archive (has not been burned)
00003 Archive (has not been burned)
00004 Archive (has not been burned)
Bypass Physical CD/DVD Recording

DVD/CD Archiving Utility dialog box

With the disk number selected, follow steps 4. – 9 outlined in section 14.2 to record the DVD/CD.

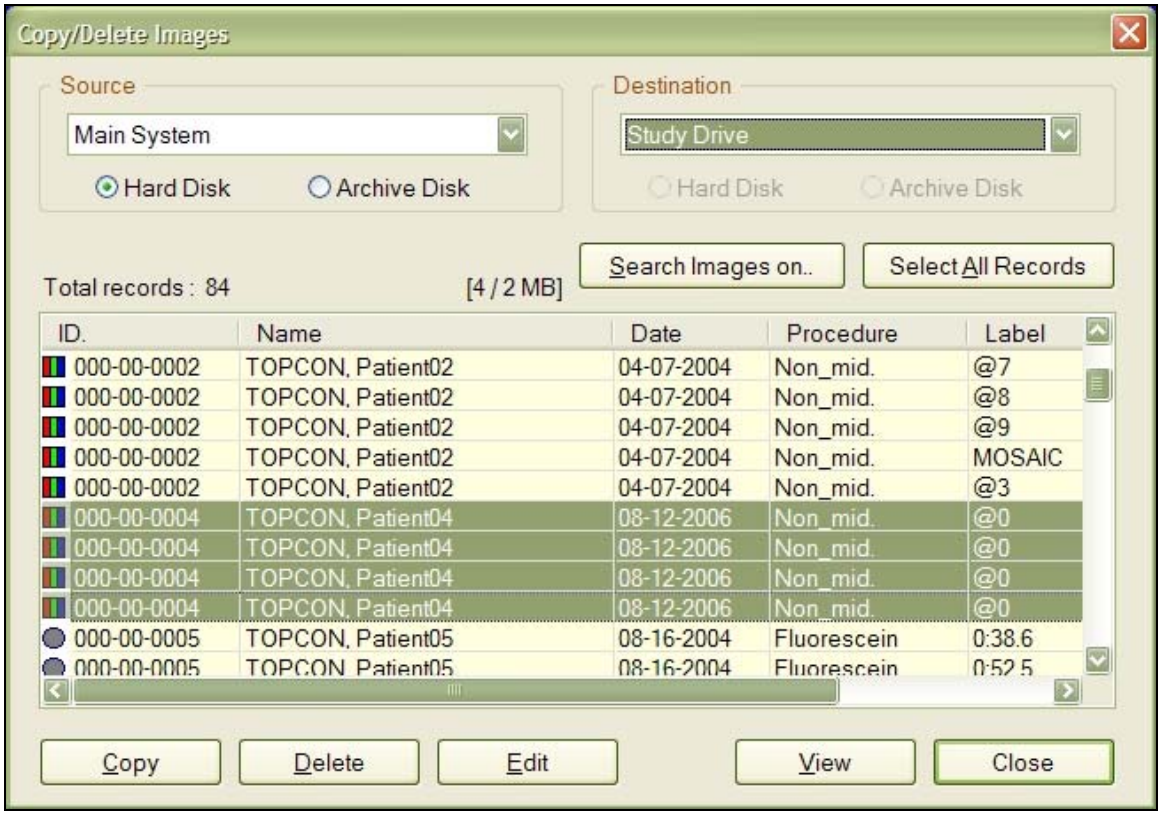
15. Recording Images for Select Patients

When the user wishes to record a CD or DVD with select images to be given to the patient for his/her own records, the following steps should be followed:

- Copy the images to the Study Drive (or any other storage drive)
- Verify contents of the chosen storage drive
- Record the CD/DVD
- Verify the contents of the recorded CD/DVD

15.1. Copy Images to Study Drive

Refer to section 13.1 on using the 'Copy/Delete Images' utility.

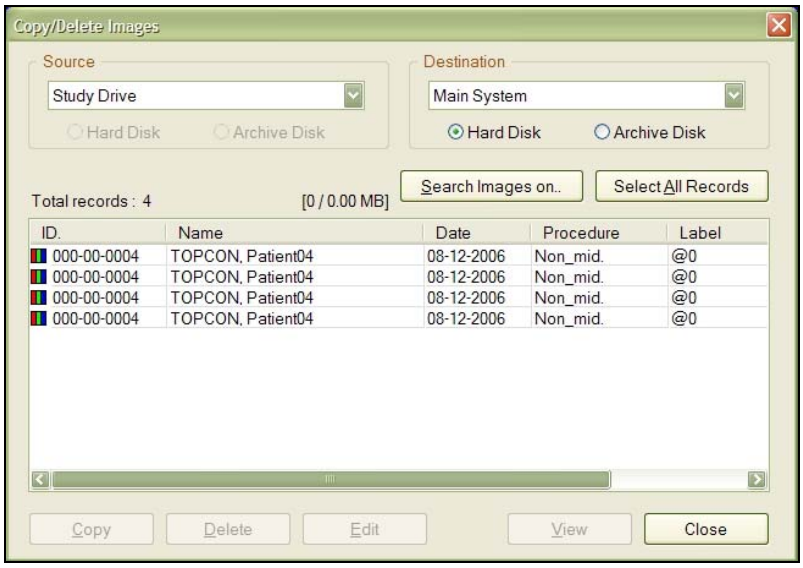


Copy/Delete Images dialog box

Use this utility to copy the desired images to Study Drive. If the Study Drive location is not available, choose another storage drive type database as the destination. Do not select a system database (i.e. 'Main System') as the destination. Do not delete copied images from the source location.

15.2. Verify Contents of Study Drive

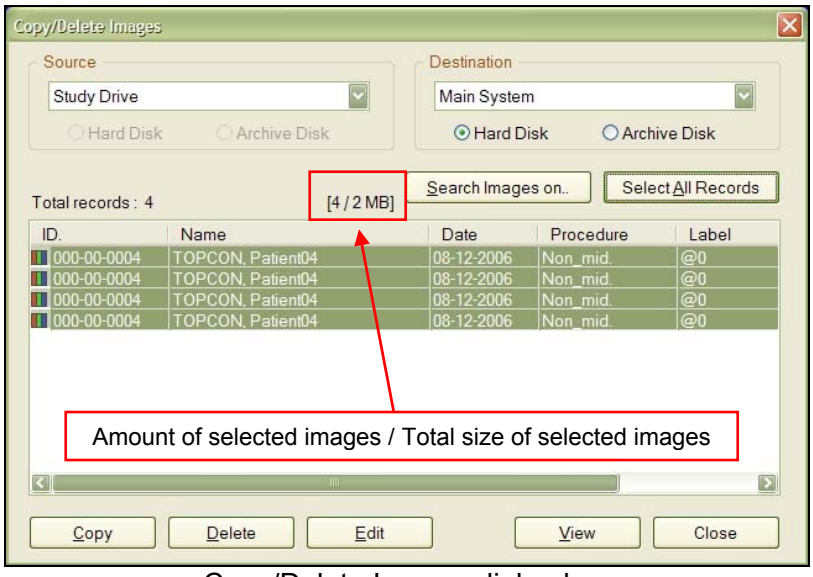
Using the 'Copy/Delete Images' utility, view contents of the Study Drive (or the other storage drive chosen in the previous step).



Copy/Delete Images dialog box

Verify that contents of that drive are exactly what you want to be recorded on a disc for the patient. If there are images present from a previous copy/delete session that should not be included on the disc, you must delete or transfer them to another destination drive before proceeding to the next step.

Check the total size of images in the Study Drive, click 'Select All Records' to highlight all images. The numbers in brackets above the list of records refer to the amount of selected records, and the total size of the selected records:

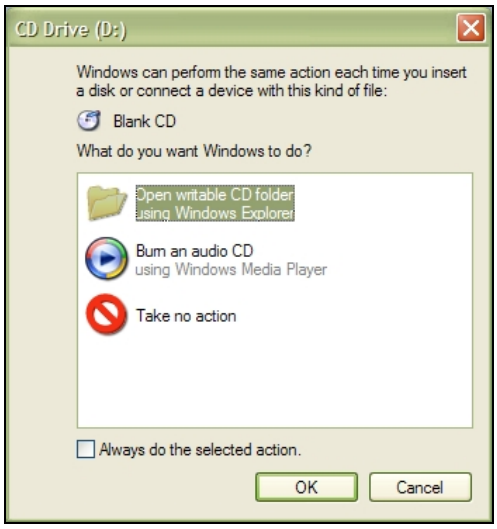


Copy/Delete Images dialog box

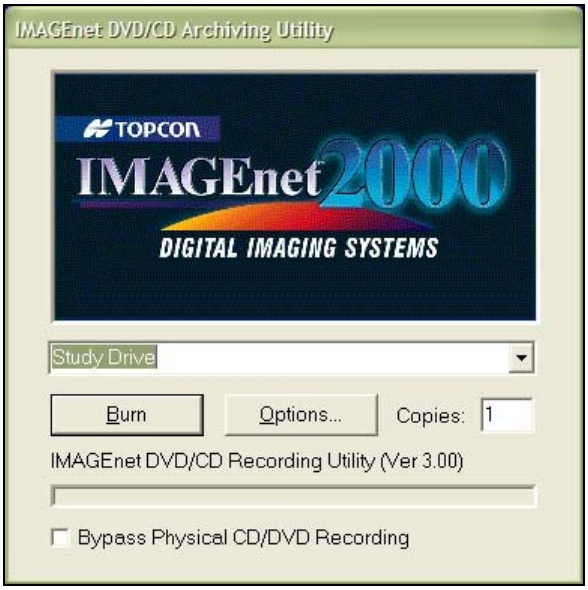
15.3. Record the CD/DVD disc

1. Close the 'Copy/Delete Images' utility and insert an appropriate media disc into the burner drive. For the total size of images to record:
   - Less than 700 MB – use a CD-R media disc
   - More than 700 MB – use a DVD-R media disc

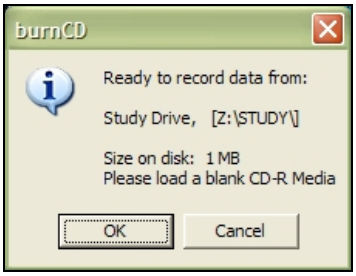
   When disc is inserted, if Windows automatically displays the action selection dialog box, click 'Cancel' to close it:


CD Drive (D:)
Windows can perform the same action each time you insert a disk or connect a device with this kind of file:
Blank CD
What do you want Windows to do?
Open writable CD folder using Windows Explorer
Burn an audio CD using Windows Media Player
Take no action
Always do the selected action.
OK
Cancel

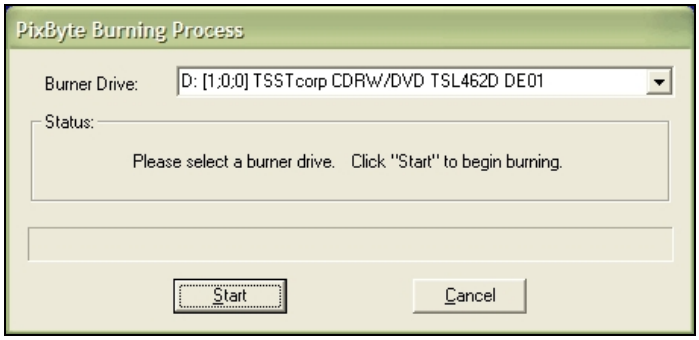
2. Select 'Record DVD/CD' from the 'Utilities' menu or click on the taskpad to open 'IMAGEnet DVD/CD Archiving Utility' (see section 9.7).
3. Select 'Study Drive' from the destination drop-down list:



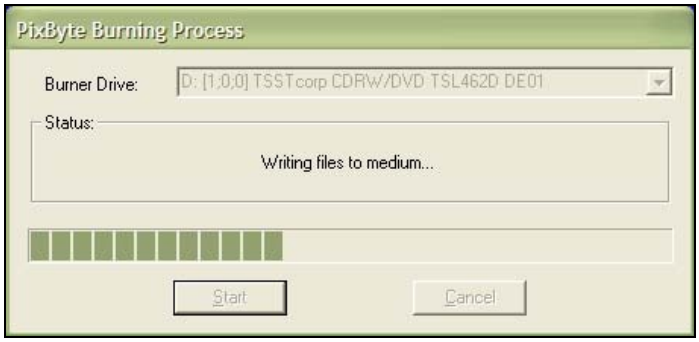
4. Click ‘Burn’ to start the burning process. You will be prompted with a similar dialog box:



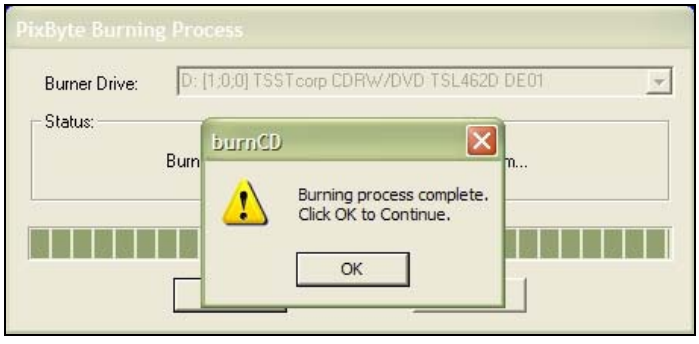
5. Click ‘OK’. The following dialog box displays to select the burner drive:



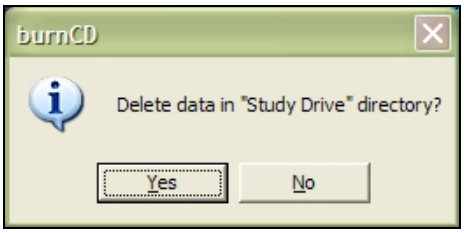
6. Select the correct burner drive from the drop-down list and click ‘Start’.
7. Wait until the burning process is completed.



8. Click ‘OK’ and the disc will be ejected automatically.



9. When prompted if you would like to delete data in the Study Drive, click 'Yes' if you want to empty out the Study Drive; or click 'No' if you want to retain the images in the Study Drive:

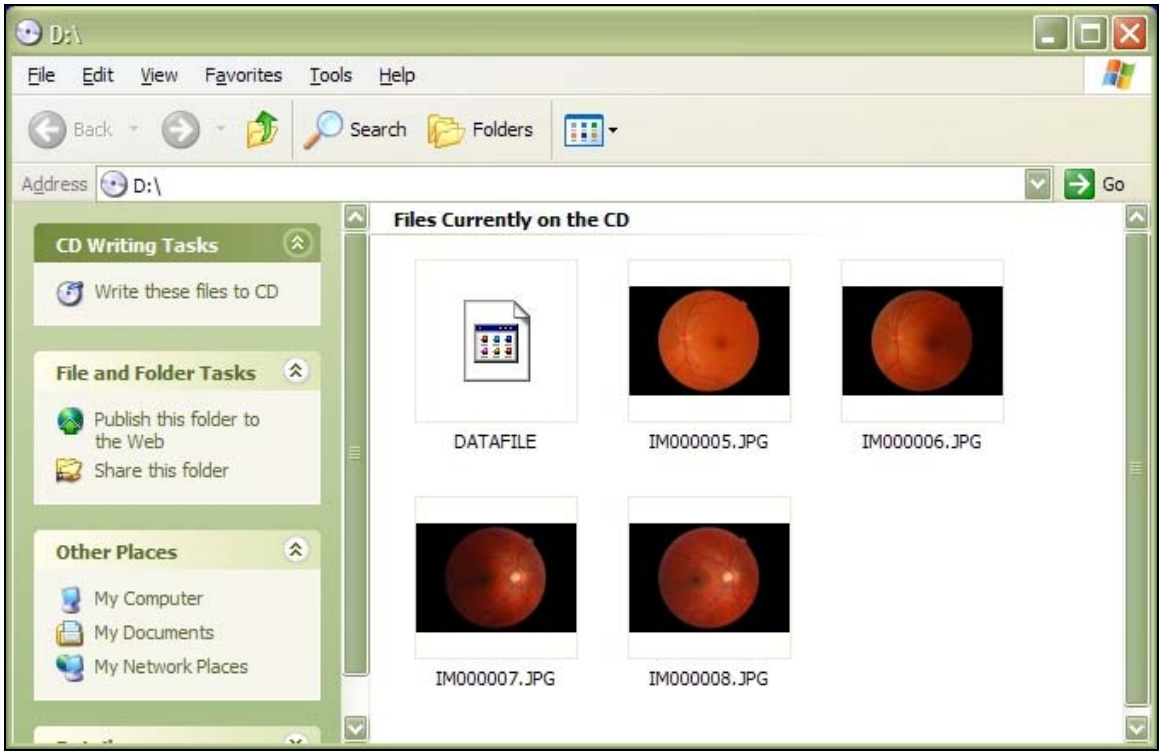


15.4. Verify Contents of the Recorded DVD/CD

Insert the CD or DVD disc back into the drive.

To View a DVD/CD on a Computer without IMAGEnet™ or IMAGEnet Lite™

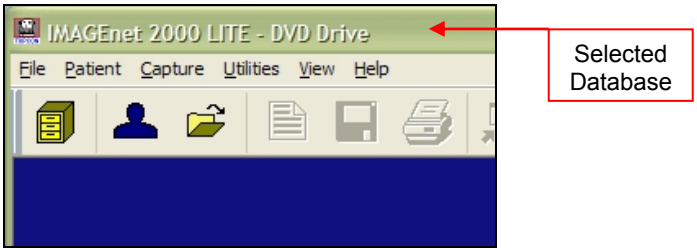
Open Windows Explorer and navigate to the drive containing the inserted disc. All image files display in the open window:



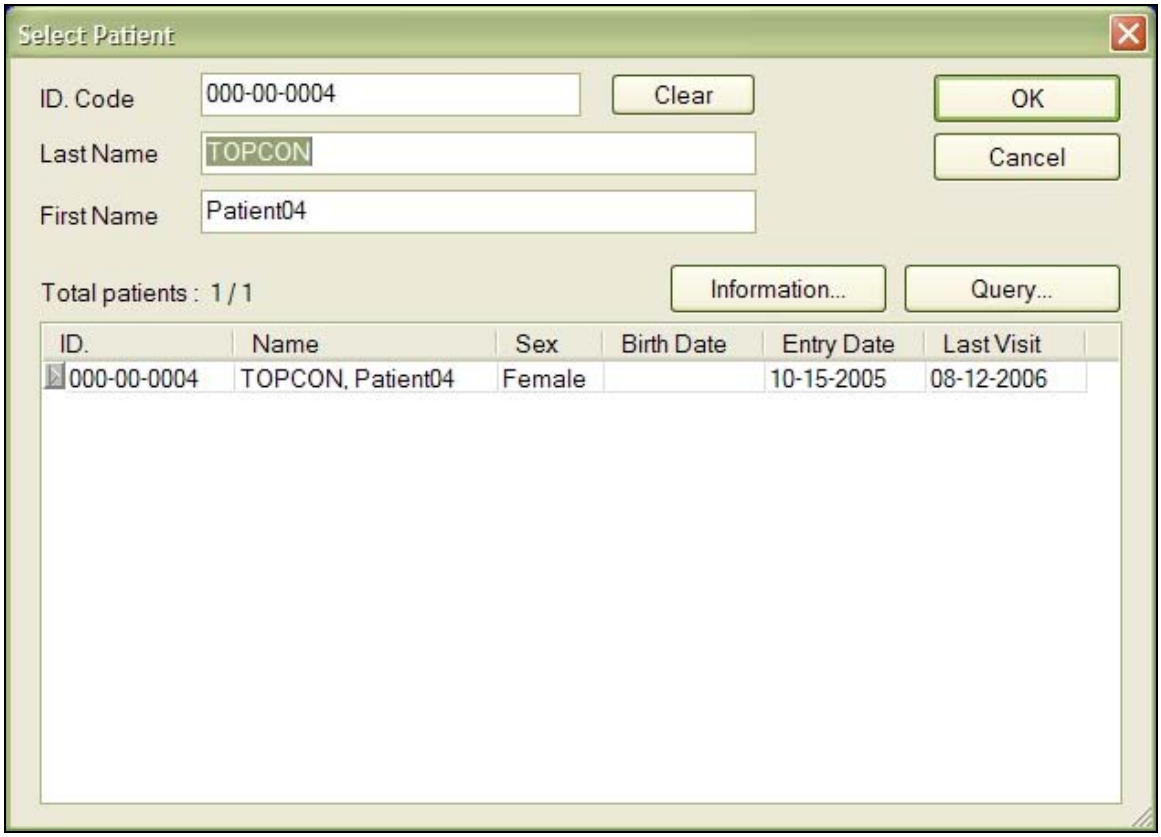
Note: No patient information is available. The 'DATAFILE' file is only for use by IMAGEnet™ or IMAGEnet Lite™.

To View a DVD/CD on a Computer with IMAGEnet™ or IMAGEnet Lite™

Using instructions in section 3.4., select the disc drive as the database drive:



The Select Patient dialog box opens automatically to show the list of patients saved on the disc:



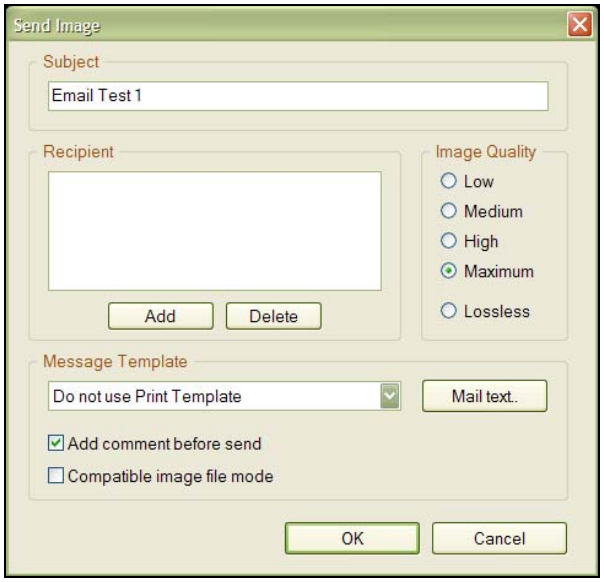
Follow instructions in section 6 to view images for the selected patient.

16. Image Exchange

Image file exchange is attained by utilizing the default e-mail client installed on the computer. An example of a typical e-mail client is the MS Outlook or Outlook Express.

16.1. Sending Images by E-mail

To send an image by e-mail, first, see section 6 to display the image you want to send. If you have several image windows open, make sure the image window of the image you want to send is active (click anywhere on the window or use several click actions of the right mouse button). Then select 'Send Image…' from the [File] menu. The following dialog box displays to specify message details:



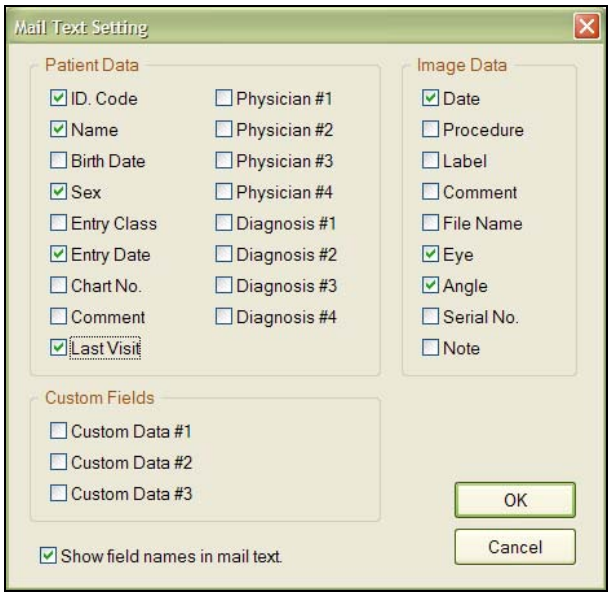
Send Image dialog box

Type title of the e-mail you want to send in the subject line. If there are no recipients in the list, you can add new recipients by typing in their e-mail addresses. If no recipients are added in this list, after clicking 'OK', the email client displays the default address book to select recipients.

Choose image quality for the selected image to be sent. The higher the quality, the bigger the file size of the attached image, the longer it will take to send the e-mail with the attachment. 'Lossless' setting indicates that there is no compression performed on the image file; therefore it will have the best quality (original image quality). 'Low' setting indicates the highest compression, therefore the smallest file size and the lowest quality.

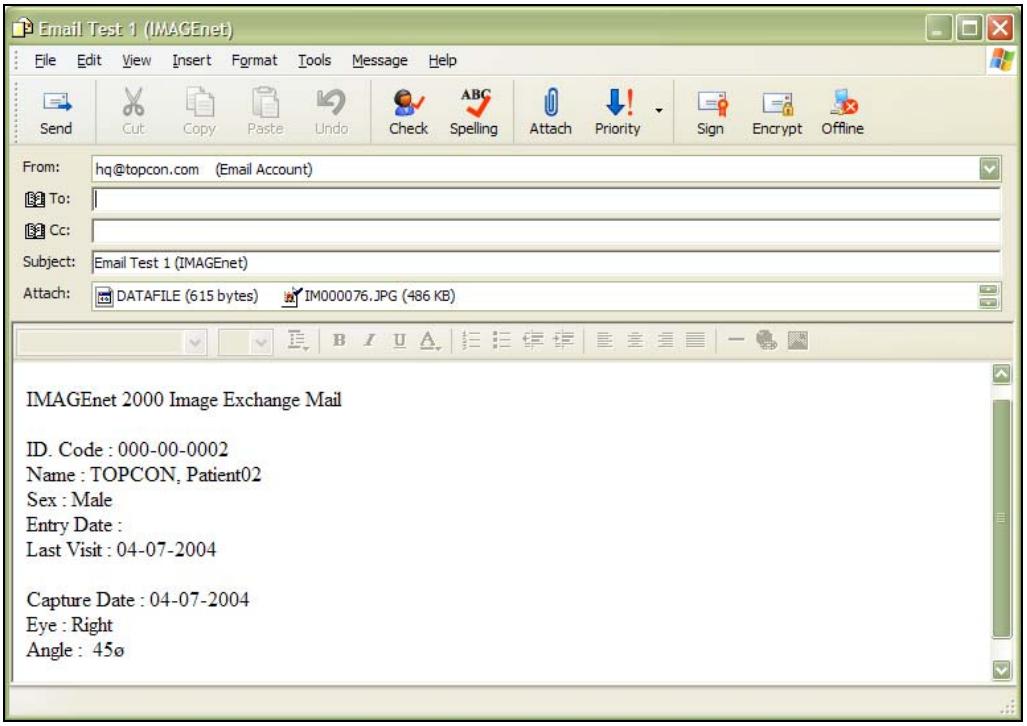
A message template may be used to customize information to be included in the mail text in the body of the e-mail message. If no template is selected, information items checked in the 'Mail Text Setting' dialog box will be added to

the mail text. This dialog box displays by clicking the ‘Mail Text...’ button when ‘Do not use Print Template’ is selected:



Mail Text Setting dialog box

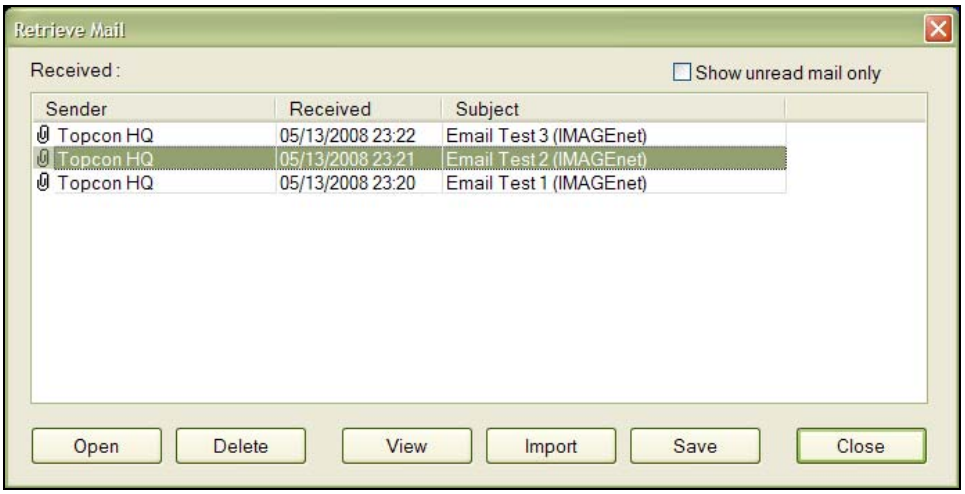
If the ‘Add comment before send’ check box is checked in the Send Image dialog box, the email client displays the message before it is dispatched for sending. At this time, it is possible to modify the list of recipients and all e-mail details before the message is sent.


Email Test 1 (IMAGEnet)
File Edit View Insert Format Tools Message Help
Send Cut Copy Paste Undo Check Spelling Attach Priority Sign Encrypt Offline
From: hq@topcon.com (Email Account)
To:
Cc:
Subject: Email Test 1 (IMAGEnet)
Attach: DATAFILE (615 bytes) IM000076.JPG (486 KB)
IMAGEnet 2000 Image Exchange Mail
ID. Code : 000-00-0002
Name : TOPCON, Patient02
Sex : Male
Entry Date :
Last Visit : 04-07-2004
Capture Date : 04-07-2004
Eye : Right
Angle : 45ø

E-mail message dialog box

16.2. Retrieving Images in E-mail

To retrieve images in received e-mail, choose ‘Retrieve Mail…’ from the [File] menu. The following dialog box displays to show received compatible e-mails:



Retrieve Mail dialog box

Select one e-mail from the list. To view the selected message click ‘Open’. The following dialog box displays:

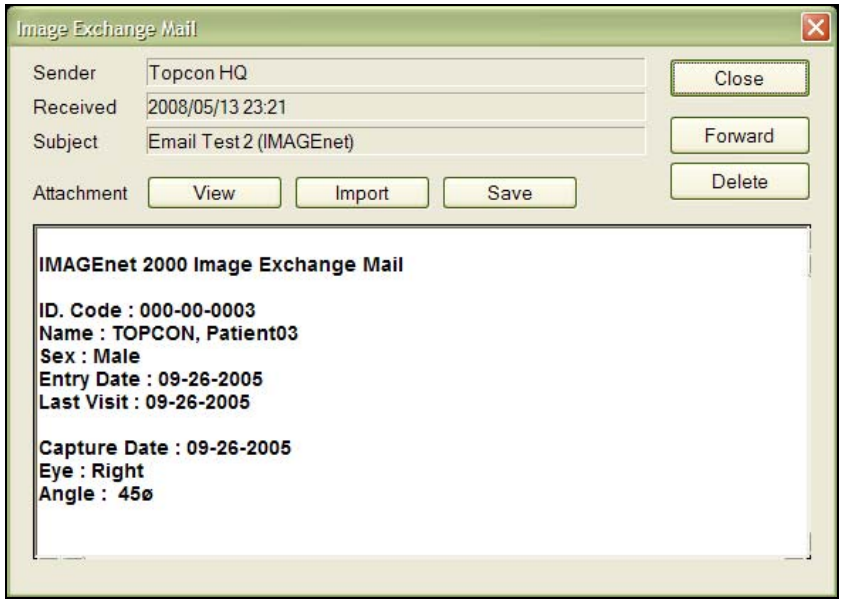


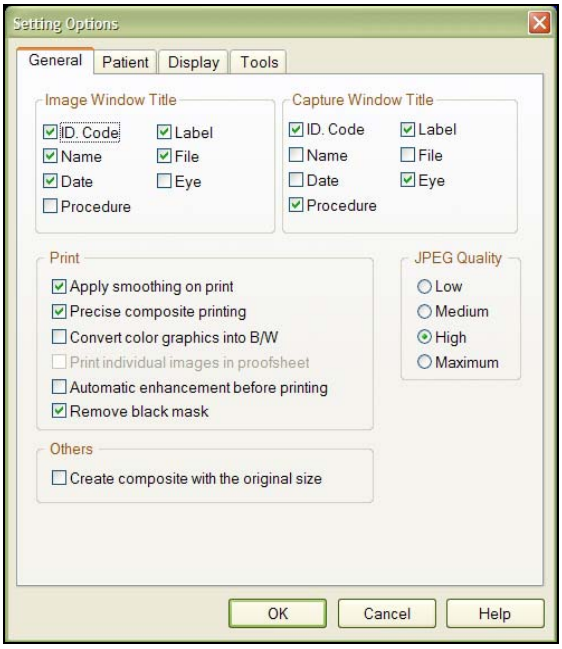
Image Exchange Mail dialog box

On either one of the above dialog boxes, click ‘View’ to view the attached image, or click ‘Import’ to directly import the attached image into IMAGEnet Lite™. The image will not be saved until the ‘Save’ button is used to choose the save location and file format.

17. Setting Options

To change IMAGEnet Lite™ options, choose 'Options...' from the [Utilities] menu. The Options property sheet displays to set various options. Options are categorized into 4 tabs. To change these tabs, simply click the tab at the top of the property sheet.

17.1. General Options



General Options tab

Image Window Title

Choose items to be shown on the image window title bar.

Capture Window Title

Choose items to be shown on the capture window title bar.

JPEG Quality

Choose the JPEG encode level for saving JPEG images.

Print

Apply smoothing on print

Performs the smooth scaling of image(s) when printing.

Precise composite printing

Enables the Print Adjustment Panel for precise printing of composite images (see section 12.5).

Convert color graphics into B/W

Converts color graphics to B/W graphics for printing (only graphics are converted, not the images).

Automatic enhancement before printing

Easily enhances images before printing.

Remove black mask

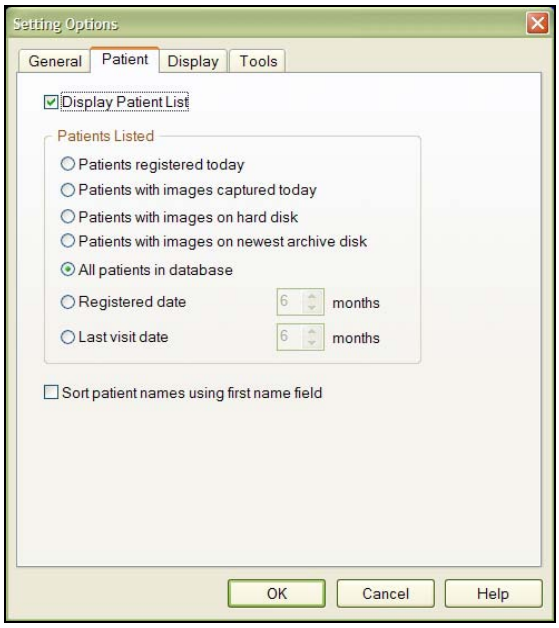
Removes black mask surrounding images for printing (see section 12.2).

Others

Create composite with the original size

If this checkbox is not checked, images are reduced to 1/2 in a 4Up composite, and 1/3 in a 9Up composite.

17.2. Patient Options



Patient Options tab

Display Patient List

When this option is disabled, instead of viewing the entire list of patients as shown in section 4.2, the following dialog box displays to search for a patient by typing information into any of the displayed fields:

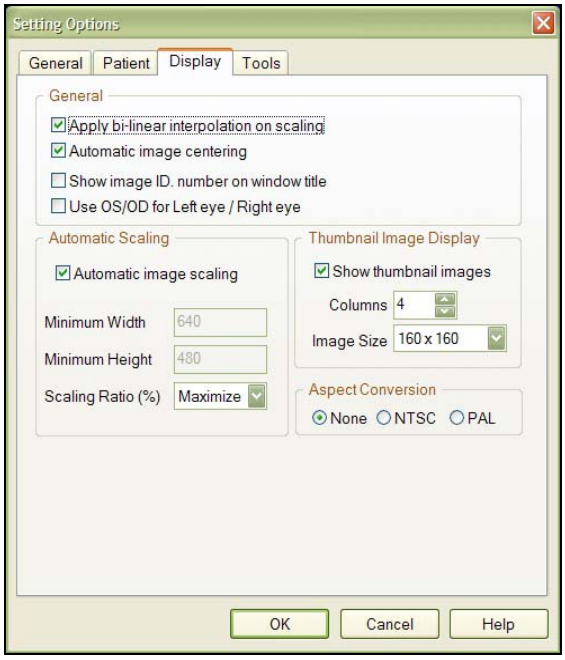
Patients Listed

Choose a range of patients to be included in the patient list.

Sort patient names using first name field

Sorts patient list using first name field (applies only if 'Sort by Name' in the [Patient] menu has been checked).

17.3. Display Options



Display Options tab

General

Apply bi-linear interpolation on scaling

Performs bilinear interpolation when an image is scaled.

Automatic image centering

Performs automatic image centering for the image window. Whenever the size of the image window is changed, the scroll position of the image window will be automatically adjusted so the center of the image is always visible.

Show image ID. number on window title

Displays the image ID number on the window tile bar.

Use OS/OD for Left eye / Right eye

Displays OD/OS for Left eye/Right eye.

Automatic Scaling

Automatic image scaling

Performs automatic scaling of image display.

Minimum Width

Sets threshold for image width.

Minimum Height

Sets threshold for image height.

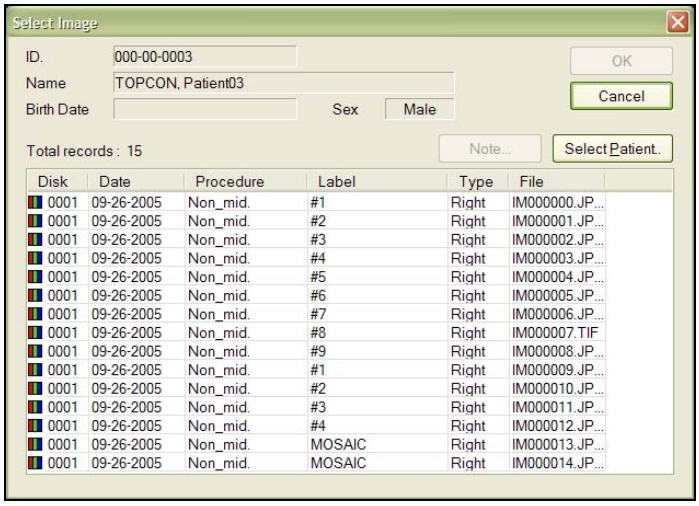
Scaling Ratio (%)

If the scaling ratio is less than 100%, only the images bigger than the threshold width and height will be scaled (reduced) automatically. If the scaling ratio is greater than 100%, only the images smaller than the threshold width and height will be scaled (enlarged) automatically. For best result, select 'Maximize' to display the maximum size that fits the entire image in an image window.

Thumbnail Image Display

Show thumbnail images

When this option is disabled, instead of displaying a thumbnail window (as shown in section 6.3.), the following dialog box displays to show a list of all images present for the selected patient:


Select Image
ID.
000-00-0003
Name
TOPCON, Patient03
Birth Date
Sex
Male
OK
Cancel
Total records : 15
Note...
Select Patient..
Disk Date Procedure Label Type File
0001 09-26-2005 Non_mid. #1 Right IM000000.JP...
0001 09-26-2005 Non_mid. #2 Right IM000001.JP...
0001 09-26-2005 Non_mid. #3 Right IM000002.JP...
0001 09-26-2005 Non_mid. #4 Right IM000003.JP...
0001 09-26-2005 Non_mid. #5 Right IM000004.JP...
0001 09-26-2005 Non_mid. #6 Right IM000005.JP...
0001 09-26-2005 Non_mid. #7 Right IM000006.JP...
0001 09-26-2005 Non_mid. #8 Right IM000007.TIF
0001 09-26-2005 Non_mid. #9 Right IM000008.JP...
0001 09-26-2005 Non_mid. #1 Right IM000009.JP...
0001 09-26-2005 Non_mid. #2 Right IM000010.JP...
0001 09-26-2005 Non_mid. #3 Right IM000011.JP...
0001 09-26-2005 Non_mid. #4 Right IM000012.JP...
0001 09-26-2005 Non_mid. MOSAIC Right IM000013.JP...
0001 09-26-2005 Non_mid. MOSAIC Right IM000014.JP...

Columns

Sets number of columns in the thumbnail image sheet.

Image Size

Sets size of each thumbnail image.

Aspect Conversion

Aspect ratio conversion mode for 512 x 512 images saved by IMAGEnet-X.

None

Does not perform a conversion.

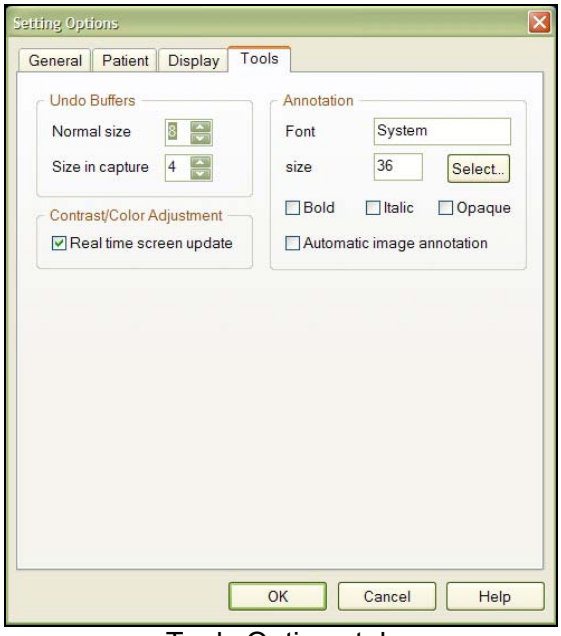
NTSC

Converts aspect ratio assuming the original image is NTSC.

PAL

Converts aspect ratio assuming the original image is PAL.

17.4. Tools Options



Tools Options tab

Undo Buffers

Normal size

Specifies size of undo buffers for tools (see section 8.1.).

Size in capture

Specifies size of undo buffers for capture windows.

Contrast/Color Adjustment

Real time screen update

Displays image adjustments immediately.

Annotation

Defines properties of image annotation.

Font, size

Select or specify font properties.

Automatic image annotation

Performs automatic image annotation for images displayed in image windows.

18. Other Features

18.1. Adjust Window to Image

When an image displays on the screen, IMAGEnet Lite™ automatically maximizes the view. However, the window size may be changed using the mouse or by some commands that affect the window size, such as ‘Tile’ and ‘Cascade’ in the [Window] menu.

To adjust the image window to the image size again, set the image window to adjust as active, then choose ‘Adjust to Image’ in the [Window] menu or click the ‘Adjust Image’ icon on the toolbar. This adjusts the window size immediately, without affecting other image windows. Window position can also be changed if necessary.

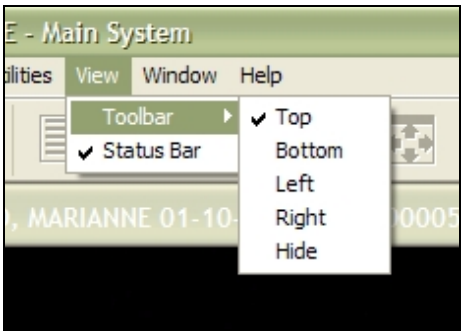
18.2. Duplicate Image Window

While using tools, to perform enhancement of images without worrying about the undo buffer, choose ‘Duplicate’ from the [Window] menu or click the ‘Duplicate Windows’ icon on the toolbar. This operation creates a copy of the image in an active window. The copy is completely independent from the original image and the original image window. You can keep applying tools to the image in the duplicated window, and the original image will not be affected.

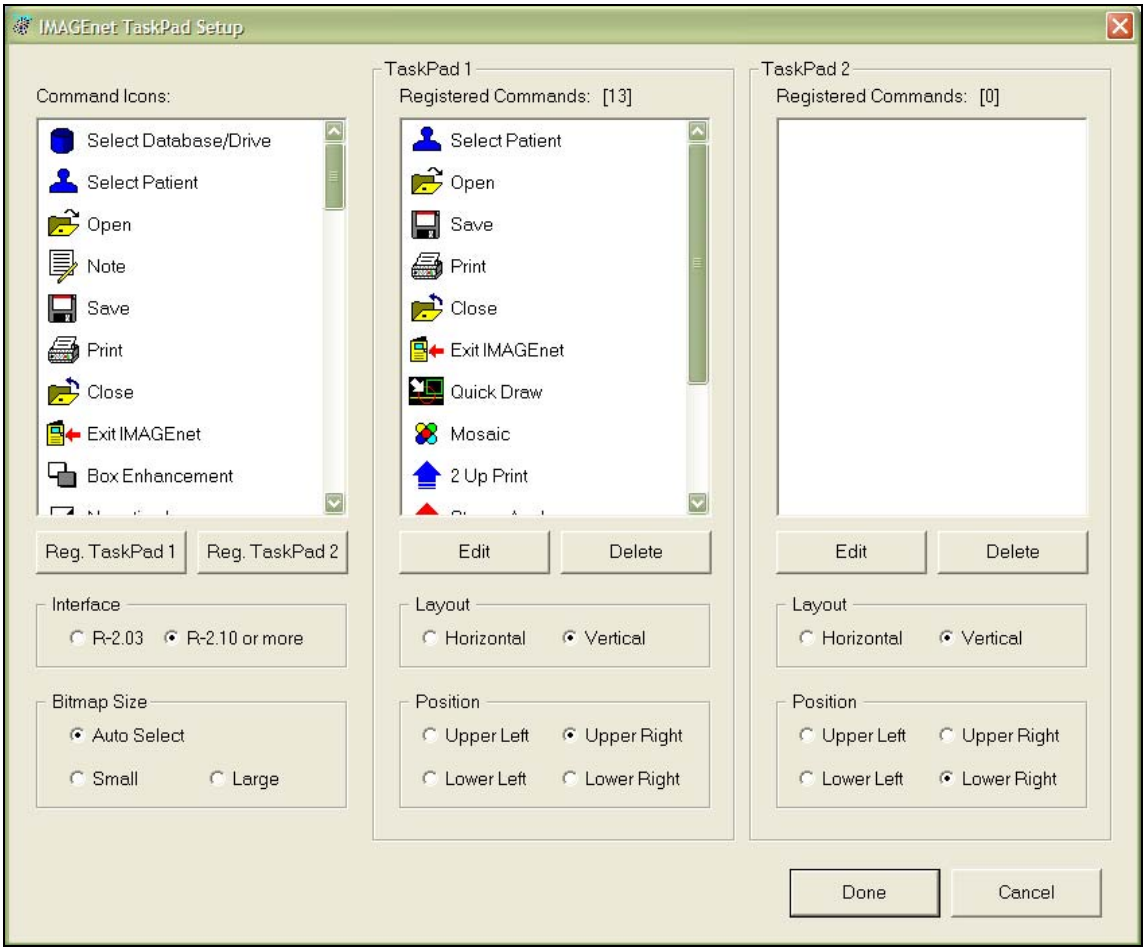
The number of copies that can be generated and kept open simultaneously depends on the amount of memory available in the system.

18.3. Display Modifications

Users may alter the placement of the toolbar or hide the toolbar and/or the status bar by making a selection in the View menu as follows:



Users may also modify the configuration, layout and location of the taskpad by accessing the 'TaskPad Setup' from Windows Start → Programs → TOPCON IMAGEnet folder:



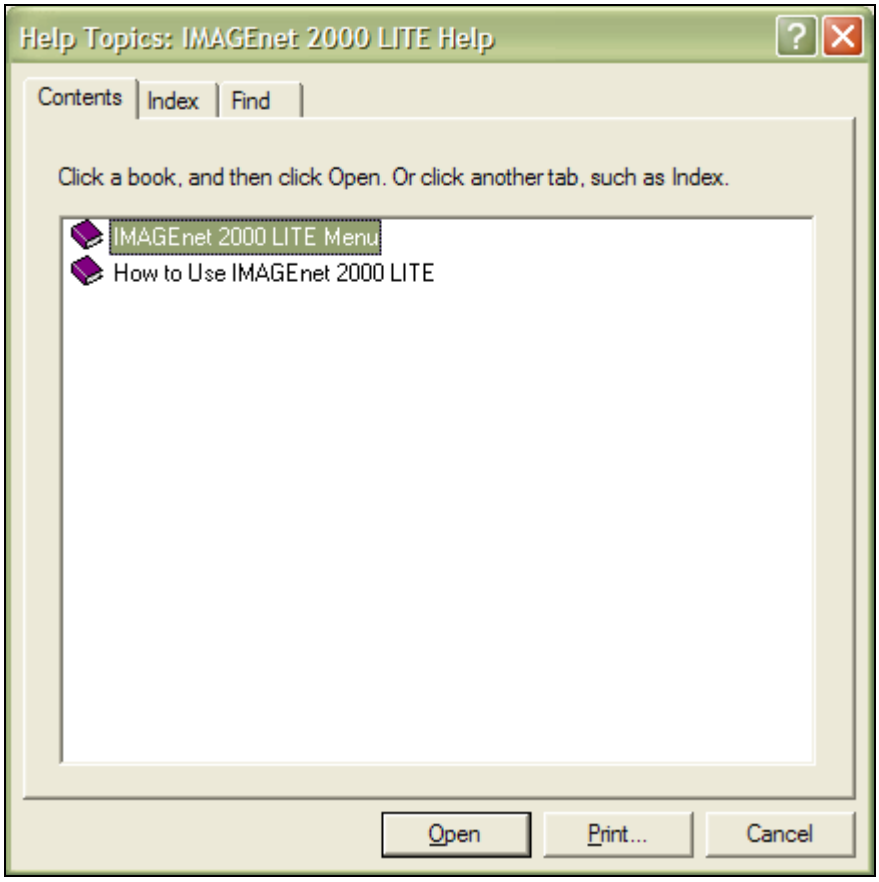
IMAGEnet Lite™ TaskPad configuration window

18.4. Cascade, Tile and Arrange Icons

Users may arrange image windows by choosing 'Cascade' or 'Tile' in the [Window] menu. 'Cascade' arranges all image windows in an overlapping pattern. 'Tile' arranges all image windows in a tile pattern. 'Arrange Icons' in the [Window] menu arranges image icons (minimized image windows), along the bottom of the IMAGEnet Lite™ window.

18.5. Getting Help

Choose ‘Help Topics’ in the [Help] menu to display the opening screen of Help:



IMAGEnet Lite™ Help dialog box

This allows jumping to step-by-step instructions for using IMAGEnet Lite™ and various types of reference information. Alternatively, click the ‘Context Help’ icon on the toolbar, and the mouse pointer displays as an arrow and question mark. Then click anywhere in the IMAGEnet Lite™ window. The Help topic displays for the item selected.

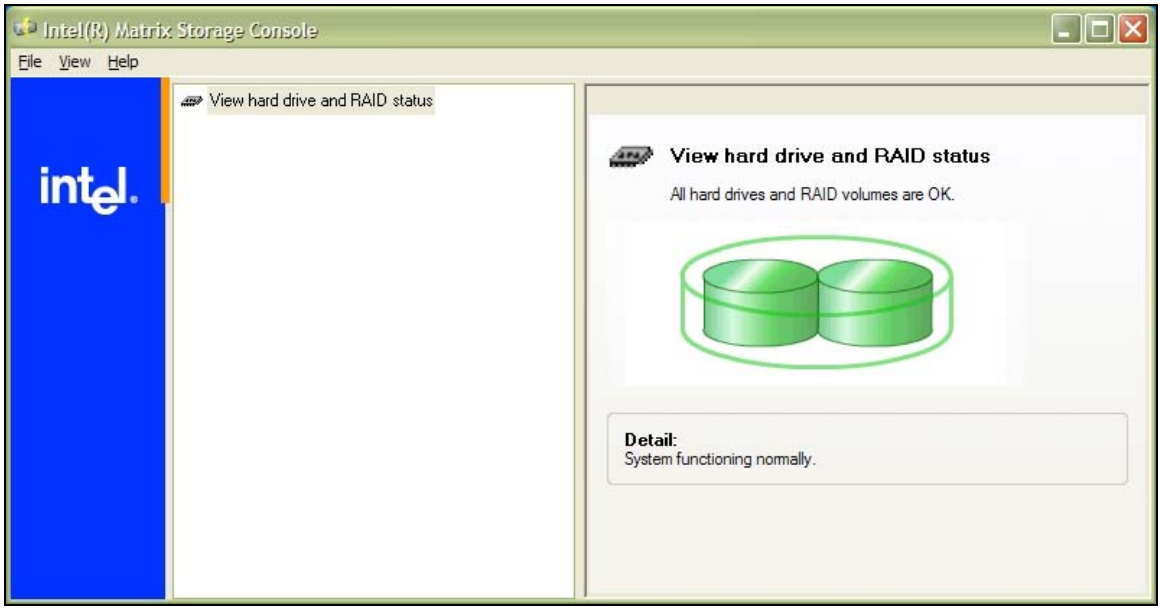
To access the proper reference information for a dialog box, press the F1 key while the dialog box displays. This operation directly pulls up the help screen related to the dialog box.

19. IMAGEnet Lite™ Backup

Note: This section applies only to stations on which the system database is stored.

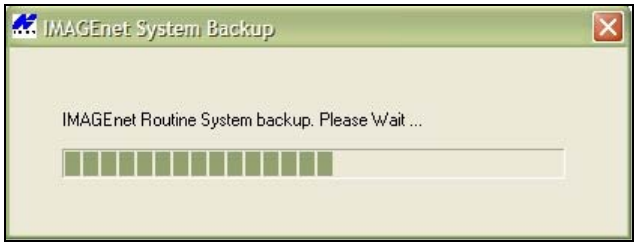
19.1. Systems With Raid-1 Configuration

IMAGEnet systems configured with Raid-1 hard-drive setup (mirrored hard-drives) do not require any additional backup process. The redundant drives ensure that all data is stored in 2 separate locations of the computer. To view the Raid-1 configuration and status, open 'Intel Matrix Storage Console' from Windows Start → Programs menu. The following window displays to verify that the Raid is in a healthy state:


Intel(R) Matrix Storage Console
File View Help
intel.
View hard drive and RAID status
View hard drive and RAID status
All hard drives and RAID volumes are OK.
Detail:
System functioning normally.

19.2. Systems Without Raid-1 Configuration

The configuration of every non-Raid station with IMAGEnet Lite™ where the actual system database is stored (usually the capture station) ensures that all IMAGEnet Lite™ application components and patient-related data is backed up during each computer startup. The Startup folder of MS Windows™ operating system contains a shortcut to 'IMAGEnet Backup', which is a synchronization utility that can be optionally scheduled to also run at any other time. The following progress bar indicates the backup process:



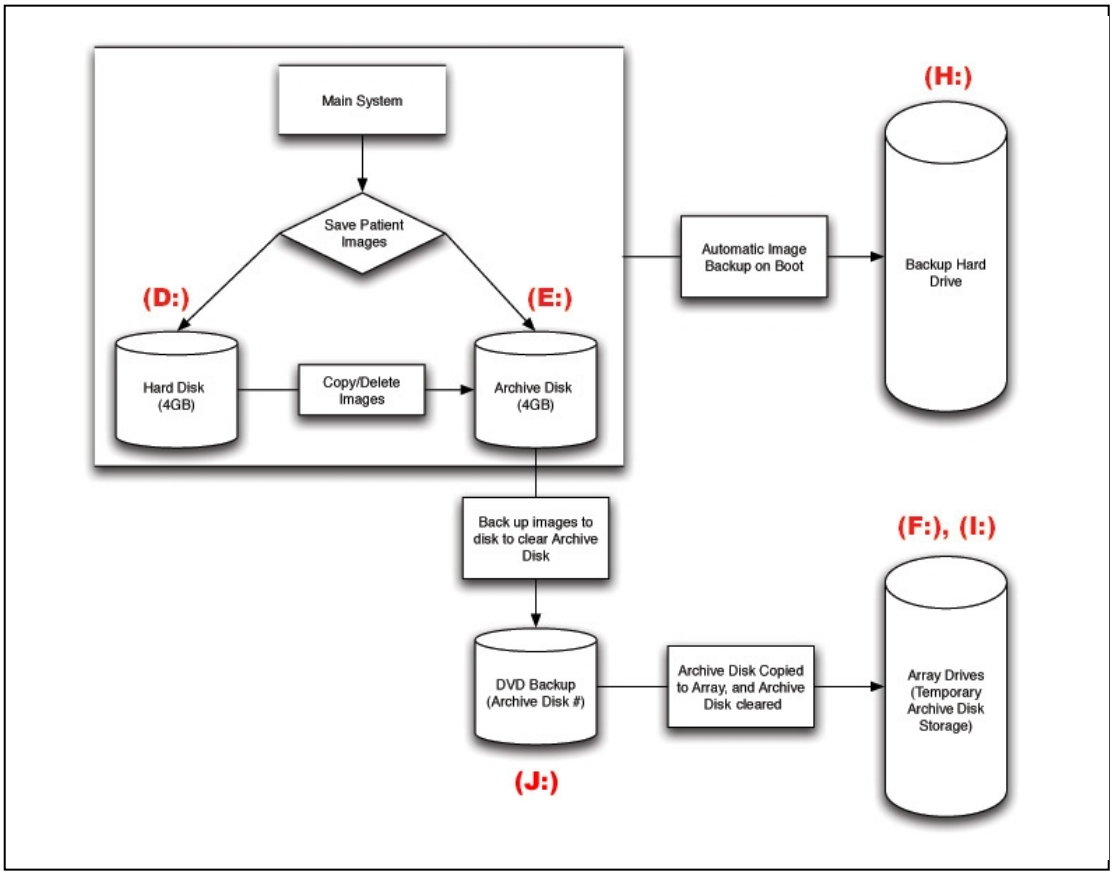
This utility simply synchronizes last changes made for all IMAGEnet Lite™ components and patient related data into a separate location, called the Backup Drive. The more changes done since the last synchronization, the longer this process takes to synchronize new changes.

Data included in the backup procedure:

- All IMAGEnet related program groups and registry entries.
- All system database files (D_BASE folder).
- All contents of the Hard Disk.
- All contents of the Archive Disk.

Data NOT included in the backup procedure:

- Array Disks: Based on the Archiving Process, it is assumed that by the time all data is moved from an Archive Disk to an Array Disk, a physical DVD/CD disc is also recorded (see section 14). This DVD/CD disc serves as the ultimate backup, and may be used in cases when data restoration is necessary.
- Storage Drives: Locations such as the 'Study Drive' or the 'Emergency Save Location' are considered temporary; therefore backup of these locations is not provided.



Typical design of IMAGEnet Lite™ system database structure and backup

In case of unrecoverable data failures, all data can be restored from the Backup Drive and the DVD/CDs discs (assuming the Backup drive data is accessible).

Note: Depending on the system type, the Backup Drive may or may not be located on a separate hard-drive.

As per client's request, it is possible to add a redundant backup destination (such as external drive, network drive, etc.). The minimum necessary storage size required for the additional backup location is 10GB. Please contact TOPCON Technical Support Team for reconfiguration of the IMAGEnet Backup utility.

Topcon Medical Systems, Inc.
37 West Century Road
Paramus, NJ 07652
800-223-1130
www.topconmedical.com

Topcon Canada, Inc.
87 Northland Road
Waterloo, ON N2V 1YB
800-387-6768
www.topcon.ca

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